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SYMPTOMS AND DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS*

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The diagnosis of a well developed case of pulmonary tuberculosis is usually an easy matter, although it is surprising how many such cases proceed to a late stage without being recognized. When one considers the prevalence of consumption and that its curability depends, in a great degree, upon early diagnosis (80 to 90% of cases being curable if diagnosed in the incipient stage), it is apparent that early diagnosis is of the greatest importance.

There are, I am sure, but few physicians who are really unable to diagnose consumption when such symptoms as cough, expectoration, fever, night sweats, etc., are present. Even such cases, however, from carelessness or otherwise are often unrecognized for long periods of time, being called bronchitis, chronic catarrh, dyspepsia, malaria, etc. But advanced cases are not the ones to which I invite your attention today. We are to consider *incipient* pulmonary tuberculosis, which is, one might say, an en-

tirely different disease; it certainly has an entirely different clinical picture from the malady we were taught to call consumption in books and colleges not many years ago. And if you have in your minds the symptoms and physical signs of advanced or even moderately advanced cases only you will utterly fail to recognize the cases of incipient disease we are about to consider.

Too many physicians depend for their diagnosis upon finding tubercle bacilli in the sputum. For this reason a large number of incipient cases are overlooked. Dr. Trudeau has told me that 25% of the patients who enter the Adirondack Sanitarium have no tubercle bacilli in their sputum. Of 6,000 patients treated in the different Sanatoria of Germany in 1902, 2,000 or one-third were diagnosed without the aid of the microscope, before the open stage of the disease was reached. As a rule I believe the presence of tubercle bacilli in the sputum does not represent the initial stage of pulmonary tuberculosis. The primary result of infection of pulmonary tissue with

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tubercle bacilli is cellular degeneration and necrosis. In most cases the organism responds to the initial injury by cell proliferation and the formation of tubercles. If this newly formed granulation tissue is sufficiently strong, encapsulation and arrest of the disease takes place; otherwise caseation follows. The tubercles soften and liquefy and in time break through the thin membrane surrounding them into the bronchial tubes. Not until this open stage of the disease is reached do we find tubercle bacilli in the sputum, and from that moment the door is open to mixed infections and their resultant evils. If it is possible, therefore, to make a diagnosis during the closed stage, the prognosis is much better and the patient is not in any way a menace to the community.

If called upon to attend a case of inflammation in some other part of the body, what would be thought of a surgeon who was unable to make a diagnosis until an abscess had ruptured and its purulent contents escaped? But that is the attitude many physicians assume when confronted with a case of pulmonary tuberculosis. No matter what the symptoms or physical signs may be, they are unwilling to diagnose consumption until tubercle bacilli are demonstrated in the sputum. I now examine the sputum only in cases of doubt. In advanced cases the symptoms and physical signs are usually such as to make a diagnosis certain without the sputum examination. In incipient cases the absence of tubercle bacilli renders the diagnosis none the less certain.

The definition of incipency, I believe, is not as well known as it ought to be. This is shown by the fact that of one hundred and three cases recommended by the state examiners for admission to the Michigan State Sanatorium as incipients, less than one-third were found to be in the incipient stage on entering the institution. As defined by the com-

mittee of the National Association for the Study and Prevention of Tuberculosis, an incipient case is one with a slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe; no tuberculous complications; slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight); slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest; expectoration usually small in amount or absent. The recognition of these cases often necessitates painstaking and repeated examinations. We may be unable to find any positive physical signs whatever at our first examination and it is sometimes a matter of great surprise to see what slight physical signs are to be found even with a positive sputum. There may be no symptoms whatever, except loss of weight, this being in my experience the first symptom present in the largest number of cases. Twice, however, in the past month young girls have been brought to me, one aged eighteen years and the other nineteen years, with well marked incipient disease in the apex of one lung, both of whom weighed several pounds more than ever before in their lives. The next most frequent symptom is probably an increased pulse rate (Lawrason Brown considers this of less importance than the temperature), and a combination of this with loss of weight should always make one suspicious of incipient tuberculosis. Not until the patient has been gone over several times with negative results and a tuberculin test has failed to react, should the disease be excluded. Sometimes nothing but loss of weight will be discovered. Such patients are sometimes said to be in a pretubercular stage. This term, I think, should not be used at all. It has been generally applied to cases of incipient disease which have presented no

outward manifestations.

One has to be on his guard constantly or these cases of incipient disease will escape notice. I have several times had patients come to me occasionally for two or three months with loss of appetite or general debility and some loss in weight before finding them to be cases of incipient tuberculosis. I now weigh every patient who comes to my office and in a good many cases loss of weight alone or in combination with a rapid pulse or perhaps a rise of a degree of temperature has given me the first indication of the true condition. About the only symptom observable may be a slight rise of temperature sometime in the 24 hours. In order to detect it a two hourly observation should be taken extending over several days. The highest temperature will usually be found between five and nine o'clock p. m., but it is at times highest in the morning between eight and ten o'clock, or at noon. This elevation may last but an hour or two, so that if the temperature is taken only two or three times a day it may be entirely overlooked. If there is a daily rise of temperature of from one-half to one degree that cannot be explained in some other way, especially if there is also present any loss of weight or increased pulse rate or anemia, it should go a long way in confirming our suspicion of incipient tuberculosis. If carefully followed up, a rise of temperature at some time of the day will be found I believe in almost all incipient cases, and the thermometer is an indispensable agent in arriving at a correct diagnosis.

Repeated examinations of the chest may have to be made before distinct physical signs are detected. In organic heart lesions we know that a murmur may be present one day and absent the next, and that it is much influenced by the position of the patient and the amount of pressure put upon the stetho-

scope. I have seen Osler search four days in succession before finding a murmur of mitral stenosis. In the same way the physical signs of incipient lung disease may vary from day to day and satisfactory evidence may be found only after many and prolonged examinations.

One of the earliest physical signs is a change from the continuous to the interrupted rhythm. Inspiration loses its breezy character and becomes roughened and shorter in duration with perhaps an interrupted, jerky, or cog-wheel character, while expiration is prolonged and higher in pitch. This roughening and slight alteration in the character of the respiratory murmur, produced by the air passing over slightly uneven surfaces in the bronchial tubes, is probably the earliest physical sign of tuberculous involvement of the air passages, especially when found immediately above or below the clavicle. Loomis says that the first physical signs may be found by making the patient place his hand on the opposite shoulder. The stethoscope is then placed over the posterior portion of the lung uncovered by the scapula. Just above and external to where the bronchial tubes are given off there will be heard prolonged tubular breathing and fine crepitation on coughing.

Next in importance to a roughened or cog-wheel respiratory murmur or perhaps even more important is the finding of fine crepitant rales on inspiration. These rales are by no means constant. They may be heard one day and not the next, and are often present on damp and rainy days while absent in dry weather. They are most frequently heard in front, just above or below the clavicle or in the suprascapular region. In going over the chests of patients in whom I have had no reason to suspect tuberculosis, I have sometimes found fine crepitant rales at the base which have long puzzled me, and I was glad to hear Janeway of New York say some time ago that one may

hear fine crepitant rales when they do not mean anything. He called them auditory hallucinations. I suppose they are due to a slight increase in the normal secretion of mucus. But when such rales are unilateral and constant, and associated with a slight rise in temperature or a progressive loss of weight or an increase in pulse rate, they are indicative, in a great majority of cases, of incipient pulmonary tuberculosis.

Cough may or may not be present, and it sometimes requires repeated questions on different days to secure an admission from a patient that he coughs. Recently two brothers came to me. One had been treated by a well-known colleague, with a diagnosis of probable pulmonary tuberculosis. He had no expectoration and but little cough. He had lost ten pounds in weight, but had no increase in temperature or pulse rate. I gave him a hypodermic tuberculin test which confirmed the diagnosis. The other brother consulted me for nasal and pharyngeal catarrh. He weighed within four pounds of his maximum, had no fever or increase of pulse rate and always denied having a cough. After treating him daily or every other day for a month, during which time he said his catarrhal trouble was steadily improving, something or other induced me to examine his chest, whereupon I found disease in the apex of both lungs. I then secured from him an admission that he coughed a little every morning on arising, which he attributed to his naso-pharyngeal catarrh. His sputum was loaded with tubercle bacilli.

Of the early symptoms, hemoptysis, when present, is one of the most important. In the great majority of cases it is due to pulmonary tuberculosis. It may also be due to mitral stenosis or tricuspid regurgitation. I think all cases of hemoptysis should be considered tuberculous in nature until they are

proven to be otherwise. The following case is interesting in this connection:

Mr. S., hardware merchant, Manton, Mich., aged 43, consulted me Oct. 10th, '09. His partner died of consumption five years ago; highest weight 148 pounds, 15 years ago; usual weight for past six years, 135 pounds; today 126 pounds; five years ago had rheumatism throughout the fall and winter; three years ago was out of his store one year on account of poor health; has been running down for five years. In June, '08, he had pleurisy for a week; has coughed more since then; no sputum; had a hemorrhage from the lungs Aug. 20th, '08. He had no fever and his pulse was but slightly accelerated. Physical examination of the lungs revealed nothing conclusive. A faint mitral systolic murmur was found, best heard at the end of expiration. I gave him two tuberculin eye tests, one cutaneous test and three hypodermic injections of Koch's old tuberculin of two, five and ten milligrams respectively, all with negative results. I was somewhat suspicious that my tuberculin was inactive and let him return home, telling him that while I was of the impression he had tuberculosis, I could not prove it then. I prescribed rest, fresh air, plenty of food and tonics. During the next month he had four more hemorrhages. Dec. 17th, he returned weighing 133. A cutaneous test with tuberculin, which I knew to be active, was negative. After repeated examinations I came to the conclusion that the mitral systolic murmur was of organic origin and the cause of the hemorrhages.

According to Brown 90% of cases of hemoptysis are followed sooner or later by evidences of pulmonary tuberculosis, and Cornet says that "All in all one does not err in considering actual pulmonary hemorrhage to be of tuberculous nature, although hemorrhages do occur in certain other diseases." The first symptom to appear in several of my cases was hemoptysis. One of these weighed more at the time than ever before in her life, and it was over a year before any other symptoms appeared. Twice in the past year patients have come to me with a diagnosis of pulmonary tuberculosis in whom I have found the lesion to be mitral stenosis, both of whom had

the precordial thrill, the presystolic shock and the presystolic murmur pathognomonic of stenosis of the mitral orifice.

Percussion of the chest is frequently negative in the incipient stage. This is not strange when we consider the pathology of the disease. The earliest deposit in the lungs usually occurs in the form of miliary tubercles in the mucous membrane of the smallest bronchi. Although these may early give rise to a few auscultatory signs, such as a change in the quality of the vesicular murmur or a few fine rales at the apex or in some part of the upper lobe, best heard during inspiration following a cough, these spots of consolidation must be at least several centimeters in area to produce much change in the percussion note, and considerable experience is required to detect these slight changes found in incipient disease.

Pryor has called attention to the fact that one of the most reliable signs of consolidation is obtained by observing the transmitted whisper produced by the patient whispering the words, "ninety-nine." "The variation in pitch and the prolongation of sound are far more easily detected than when the speaking voice is employed." He regards this sign as one of the greatest importance.

While Kyritz asserts that internal medicine is just beginning to appreciate the importance of and to utilize Roentgen research, especially in the diagnosis of incipient tuberculous processes in the bronchial glands and apices, *practically* the X-ray does not seem to be of much value in the diagnosis of *incipient* pulmonary tuberculosis excepting in the hands of experts, and the number of these with the necessary laboratory, clinical and postmortem experience is limited. Even men with large experience differ in their interpretations of skiagraphic findings. In the hands of an ordinary practitioner conclusions

drawn from the use of the X-ray are misleading and of no value whatever. Dr. Paul Krause of Jena, stated in a paper presented to the recent International Congress on Tuberculosis at Washington that infiltration at the apices sufficiently extensive to be demonstrated by percussion produces a more or less deep shadow, but that simple catarrhal processes in the early stage cannot be demonstrated either by the fluoroscope or by taking an X-ray photograph. As in 95% of cases of incipient disease in adults the first physical signs appear at the apex, due to an apical catarrh, the X-ray would not seem to be of much value, even in the hands of an expert, in the class of cases we are considering. Krause concludes that in the main X-ray diagnosis merely confirms or completes the clinical findings and is limited to the detection of differences in density in the lung. Williams of Boston, says that the X-ray examination should not be used to take the place of auscultation, but only after thorough classical examination of the chest has been made. He believes the value of the X-ray to be very great in the early diagnosis of tuberculosis, especially in determining the condition of the central portions of the lungs; that this method of examination is not infallible, but is corroborative, more accurate and sometimes earlier than the classical method.

Bonney of Denver, has resorted to radiography in a large number of clearly defined cases of tuberculosis in order to compare the clinical and skiagraphic findings in cases of small circumscribed effusions, pulmonary cavities and suspected mediastinal glands. "As a rule," he says, "the information secured has been strikingly conclusive. As a result of this inquiry, however, previous convictions as to the slight practical value of the X-ray in the diagnosis of very incipient cases without well defined structural lesions have been substantially

confirmed." Occasionally Bonney found the X-ray picture simulated certain pathologic conditions which did not exist, as aortic aneurism and pleural effusion, and in several cases of slight but undoubted pulmonary infection the rays failed to give any shadow whatever. In advanced cases, however, all observers agree that by means of radiography wonderfully accurate and valuable information may be obtained as to the extent and nature of the structural changes.

Dock is of the opinion that in many cases of incipient tuberculosis, where a clinical diagnosis could be made with all the assurance possible short of finding bacilli or getting a reaction, the X-rays have been much less convincing than the physical signs. "Undoubtedly," he says, "in some incipient cases, as in some advanced cases, X-rays will disclose things not known before; but it seems to me it is much better to try to make diagnoses in other ways, and especially better for physicians to use all the methods they can, instead of sending patients off to X-ray operators and depending on their results."

Much work has been done in recent years to determine the exact diagnostic value of the tuberculin reactions, and tuberculin is now regarded as one of the most useful agents in the diagnosing of doubtful cases of tuberculosis. A great many objections have been made in the past to the subcutaneous use of tuberculin for diagnostic purposes, but so far little proof has been brought forward to show that when properly administered there are any real objections to its use. A positive reaction probably always indicates tuberculosis in some part of the body. There are only one or two instances on record, (Lawrason Brown) in which after reaction tuberculosis was not found during a carefully made autopsy, and it is possible in these cases some minute foci of disease escaped de-

tection. The recent work of Warthin on the liver showing that we may have "tuberculosis without tubercles," and that the primary lesions of cell degeneration and necrosis may exist without secondary lesions of tubercle formation indicates that tuberculosis may easily escape detection at an autopsy as ordinarily conducted. Failure to react to tuberculin does not always prove the absence of tuberculosis, for in advanced cases reaction frequently does not occur. In all early cases, however, ten milligrams of tuberculin administered hypodermically will produce a reaction consisting of headache, backache and pains in the bones and muscles similar to those experienced in influenza, and fever. The most characteristic symptoms are the backache and elevation of temperature which usually appear within 12 to 24 hours after the injection; occasionally the reaction is delayed until the second 24 hours. The temperature rises from one to three degrees or more, occasionally reaching 103° to 104° F. All persons who react to tuberculin do not, of course, need treatment. It is only when symptoms or signs of disease are present that treatment should be insisted upon.

May 15th, 1907, Wolff-Eisner of Berlin, and June 16th, Calmette of Lillie, France, brought to the notice of the profession a method of diagnosing tuberculosis by the instillation into the eye of a one-half to one percent solution of tuberculin, whereby hyperemia of the conjunctiva is produced in infected individuals. It was stated that the method was absolutely safe, no constitutional disturbances following the instillation, and only slight ocular discomfort and lachrymation. A number of writers have reported cases in which this test was negative whose sputum contained tubercle bacilli, and in far advanced and acute febrile cases a positive reaction is often absent. Wolff-Eisner reported 85%

of positive reactions in active tuberculosis in the first stage (Physical signs at the apex; unilateral or bilateral infiltration; fever absent or slight), and 58% of reactions in the second stage. In tuberculosis of the third stage the occurrence of reaction was the exception in Wolff-Eisner's experience, occurring in but 23% of his cases. A. Fränkel obtained positive reactions in 45% of his cases in the third stage. It is therefore clear that a negative result after the use of the conjunctival test is not necessarily proof that tuberculosis is not present. On the other hand all observers who have used this test in a large series of cases (and these statements apply also to the hypodermic and cutaneous tests) report positive reactions in a number of apparently healthy persons. Baldwin found that practically all tuberculous cases, whether recent or remote, reacted. Of nine cases of healed tuberculosis, of from one to seventeen years' standing, eight reacted. It is known that at least 75% of adults have at some time during their lives been infected with tuberculosis and it is not yet definitely known to what extent the conjunctival and cutaneous tests will react in latent or long healed cases.

My own experience with the ophthalmic test in 40 cases has induced me to believe that it is much less reliable in the diagnosis of incipient disease than the hypodermic test. Such instances as the following have led me to this conclusion:

Case 1—Sarah V., aged 32. Feb., '05, she was ill with grip several weeks and did not entirely regain her former health; usual weight 130 to 132 pounds; pulse 80 to 90; no fever, no expectoration; but little cough. Physical signs consisted of fine rales at the apex and base of left lung. Four milligrams of Koch's old tuberculin hypodermically were followed by headache, backache, and a temperature of 101°. Jan. 9th, '08, she weighed 129 pounds, still coughing a little; eye test negative.

Case 2—Two sisters came to me Jan. 2, 1907, from the Sacred Heart Academy; both had coughed several months and distinct physical signs were present of incipient tuberculosis. The sputum of one contained tubercle bacilli; that of the other did not. The ocular test was used in both cases. The one with positive sputum reacted and the other did not. I then gave the latter two milligrams of tuberculin hypodermically, which was followed by a most positive reaction. Tubercle bacilli were found in both patients in an Eastern Sanitarium.

Case 3—Mr. C. N. W., aged 64; been coughing more or less for a year; general health fair; pulse 80 to 95; but little fever. Physical signs were limited to the lower lobe of one lung; I could not satisfy myself that the apex was affected. Sputum was fairly copious and fifteen specimens were examined with negative results. One of my friends has told me of a case in whose sputum tubercle bacilli were not found until the sixtieth specimen was examined. Two eye tests were used with negative results, but three hypodermic injections of tuberculin of 2, 5, and 10 milligrams respectively were positive in each instance. I submitted a complete history of the case to Lawrason Brown, who said the case was undoubtedly one of tuberculosis, although it was unusual in adults to have the physical signs make their first appearance at the base of the lung.

Case 4—Mr. G. W. S. was taken ill with what was called influenza. When I saw him March 7, 1908, he had lost 24½ pounds in weight. He had cough, expectoration, and fine rales at the base of the left lung. The eye test was used with negative results. Two milligrams of tuberculin were followed by a temperature of 103°, headache, and the appearance of tubercle bacilli in the sputum.

Case 5—Mrs. Wm. M., aged 45, came to see me on account of loss of weight and appetite. For a year she had lived with a daughter-in-law who had had pulmonary tuberculosis for three years. She had no acceleration of pulse, no fever, no cough, and no expectoration. Physical examination, however, disclosed well marked incipient disease in the left apex and two milligrams of tuberculin hypodermically produced positive results. The eye test was used with negative results.

In three other cases, one of tuberculosis of the hip, one of tuberculosis of the glands of the neck,

and one of Potts disease complicated with pulmonary tuberculosis, the eye test gave no reaction, whereas the hypodermic use of tuberculin gave results in each case.

So many instances have been reported during the last few months of violent reaction following the ocular test, whereby the eye has been seriously and permanently damaged, and the cutaneous test of von Pirquet of Vienna, is so easy of application and so absolutely devoid of danger, that I have used the eye test but seldom in the last six months. The skin test is especially useful in children in whom the application of the ocular test is sometimes quite difficult. Even Calmette says that in children under one year of age the cutaneous test is to be preferred as the more convenient and inoffensive procedure. Wolff-Eisner states that it is *far more sensitive than the eye test and that a positive reaction after its use is conclusive evidence of tuberculous infection.*

Von Pirquet reported at the Washington Congress that of 1,600 children who were given the cutaneous test in Vienna, 200 died and were carefully examined post-mortem; of 68 cases which gave a positive reaction 66 showed tubercles on macroscopic examination; only two showed no gross lesions. Concerning these we must remember, as Wolff-Eisner says, "One must not conclude as to the non-existence of tuberculosis merely on the grounds of the signs found at autopsy. Organs which seem to be healthy macroscopically may be found to contain tubercle bacilli on microscopical investigation, and even organs appearing microscopically normal may be found to contain bacilli in the animal experiment." The cutaneous test was negative in several cases in which it was made but a few days before death and in a few cases wherein the infection was slight and inactive and in which a reaction often follows a second skin test or the subcutaneous use of tuberculin.

Heiman of New York, reports a negative result in eight out of ten cases of tuberculous meningitis in which the tests were made during the terminal stage of the disease. Louis Fischer of New York, has found the skin test positive in tuberculous meningitis, coxitis, and osteomyelitis.

Recent investigations have shown tuberculosis to be much more prevalent among infants and children than it was formerly supposed to be, especially in those of tuberculous parents. In an examination of 322 children of tuberculous parents, Sachs of Chicago, found positive evidence of tuberculosis in 29%. He concluded that tuberculosis in the adult is in many cases the final result of infection in childhood. In a study of 900 children at the Boston Consumptives' Hospital, ranging in ages from a few months to 15 years, a majority of whom had been exposed to tuberculosis in their homes, Drs. Floyd and Bowditch, by means of repeated physical and sputum examinations, tuberculin tests and X-ray examinations, found that about 40% showed definite pulmonary lesions and about 26% more gave evidence of tuberculosis through signs or symptoms. In a large number of cases the clinical symptoms aided in making a diagnosis, but a good many were entirely without any complaints. In a recent paper Drs. Miller and Woodruff of New York, state that of 150 children of tuberculous parents examined by them, 51% were found to be positively tuberculous, 29% not tuberculous, and 20% doubtful. They state that the factors in arriving at a diagnosis are:

1. Malnutrition.
2. Pulmonary symptoms and physical signs.
3. Enlarged cervical lymph-nodes.
4. Hypertrophied tonsils and adenoids.
5. Tuberculin tests.
6. Sputum examinations.

"Of these the pulmonary symptoms and physical signs and the tuberculin tests appear to be the most valuable and constant. The physical signs in children under ten years are not those of the typical apical lesion usually found in adults, but are often signs of a persistent localized bronchitis, usually in the lower anterior chest."

Inasmuch as newly-born infants never react to tuberculin and it is impossible in the great majority of cases to make an early diagnosis of pulmonary tuberculosis in infants from an examination of the chest, any diagnostic method which enables us not only to make a diagnosis with certainty, but also to determine definitely the time of infection, which can be done by making periodic cutaneous tests in all exposed children, cannot fail to be of immense value. Le Fetra of New York, says, "Some cases in infants give no signs, many have simply generalized rales, while others have signs of broncho or lobar pneumonia; very few give characteristic signs such as those of consolidation. If careful sputum examinations and the skin test are both negative, one can feel safe in ruling out tuberculosis, no matter what the signs in the chest." We must remember, however, that in children in a good many cases, perhaps in a great majority of them, involvement of the lungs is secondary to tuberculous disease in the tracheo-bronchial glands, and many authorities believe that even in adults the primary focus of infection is found in the lymphatic glands. It is unquestionably a fact that in tuberculosis in children the bronchial glands are regularly found to be tuberculous on post-mortem. Cornet reports these glands tuberculous in 286 of 302 autopsies, and Holt reports 119 post-mortems in every one of which the bronchial glands were found to be tuberculous. Walstein of New York, in 185 autopsies on tuberculous children found the lungs alone in-

involved in four and the bronchial glands alone in one; in thirteen the lungs and bronchial glands only were involved. She states that "although the lungs are involved more frequently than any other organ, this proves their marked predisposition to tuberculosis rather than their primary infection." Woods Hutchinson in a recent paper, says that the data so far collected appear to point toward the following conclusions as probable: 1. That the lung is the most frequent site of tuberculous involvement in children, as in adults. 2. That whatever the port of entry, the lung suffers most severely and frequently. 3. That it would appear probable that even the glandular forms of tuberculosis do not represent an earlier or milder form of infection but are secondary to a pulmonary involvement.

The trend of opinion, however, at the present time, seems to be towards the view that in both adults and children the bronchial glands are infected first. Anatomically this is the correct incidence. In most other infections gaining entrance to the body through the intestines or respiratory tract the glands act as filters and become infected first; secondary infections follow at longer or shorter intervals.

As long ago as 1897 Petruschy in the *Deutsche medicinische Wochenschrift*, stated that the first stage of tuberculosis was always a glandular infection, the second stage was that of closed tuberculosis of the lungs, and the third stage was the open one. We at any rate now definitely know that in children the mediastinal glands are often affected long before there are any appreciable pulmonary symptoms or physical signs. We also know that the diagnosis of those enlarged glands is often exceedingly difficult, especially in the incipient stage of the disease. The symptoms produced by them depend somewhat upon whether they are located in the anterior mediastinal space, beneath the

sternum and costal cartilages, around the primary bronchi and in the peribronchial tissue at the hilus of the lung, or in the posterior mediastinal space, anterior to the vertebrae about the aorta and esophagus. In many cases there are no symptoms whatever. When large enough to produce pressure, they may give rise to dysphagia, dyspnea, peculiar paroxysms of coughing often ending in vomiting, distension of the veins of the neck and upper chest, etc. On physical examination in some cases there will be found dullness and bronchial breathing over the upper part of the sternum, unilateral alterations in the breath sounds due to pressure on the bronchi, or a venous hum over the manubrium when the child's head is bent backwards. In other cases percussion over the spine may give valuable information. Normally over the seventh cervical spine there is flatness; from the first to the fifth dorsal spine there is increasing resonance; and good resonance from the sixth to the eleventh. In enlarged bronchial glands flatness may be obtained from the second to the seventh dorsal vertebrae. In some cases a physical examination may be entirely negative. Inasmuch as well-developed tuberculosis in infants and young children is almost certain to prove fatal, the importance of the cutaneous test in enabling us to recognize these cases almost at the very moment of infection, long before symptoms or physical signs are present, is apparent. Every reacting child should be examined for hypertrophied tonsils, adenoids, and enlarged cervical glands, as well as for thoracic and abdominal lesions.

The success of modern methods of treating tuberculosis depends upon its early recognition, and while early diagnosis is exceedingly important in adults it is doubly so in infants and children.

One of the most interesting of the fifty cases in which I have used the skin test is the following:

Baby B., aged six months, weight $17\frac{1}{2}$ lbs., never been ill since birth. Her father has had pulmonary tuberculosis for one and a half years and for the past month the mother has noticed that the baby coughed a little at rare intervals, although apparently in perfect health. Physical examination of the lungs was negative, and a two hourly record of the rectal temperature for three days disclosed no fever. A skin test was given with positive results. The baby was at once put out of doors with her father for nine hours a day. When the thermometer was below 20 F., she was kept in a room with two large open windows during the day; at night she slept in an open room, spending in this way 21 of the 24 hours in fresh air. One month later she weighed $18\frac{1}{2}$ pounds, had two teeth, appetite good, no fever, some wheezing or slight dyspnea on exertion, but respiration was entirely free when she was quiet. On percussion dullness was found over the manubrium extending a little to the left of the sternum, and also over the fifth, sixth and seventh dorsal spines. On auscultation bronchial breathing could be heard over the upper part of the sternum and a faint venous hum over the manubrium when the baby's head was bent backwards. Owing to the early diagnosis, a favorable prognosis was given.

The following case also illustrates the great value of Von Pirquet's test:

Mr. J. D., aged 19, came to me Nov. 26th, 1908, was well until the middle of August, since which time he has tired easily and felt run down; appetite good; sleeps well; no cough or expectoration and no increase of pulse rate, but an occasional afternoon temperature of 99 F. Last winter weighed 110, today 117, the most he has ever weighed. The boy was convinced he was not well and had been under a physician's care for two months. I gave him a cutaneous test with a twenty-five per cent solution of tuberculin and got a positive reaction, but was unable to detect any physical signs of pulmonary disease until a month later, when I found numerous fine crackling rales in the apex of the right lung, and in the interscapular region. I gave him directions as to his eating, sleeping, etc., and permitted him to continue working. Jan. 30th, he weighed 125 lbs., and showed evidence of rapid improvement.

Another case in which the negative results of a cutaneous test proved of considerable use to me was the following: M. S., aged seven. For two or three weeks she had complained of oc-

casional pains in her right knee which were aggravated by walking. The knee was somewhat swollen and the capsule distended. I applied a plaster of Paris cast which, however, was worn but a day or two owing to the inconvenience it caused the child. A couple of days later while I was out of the city the parents were persuaded to take her to a surgeon who diagnosed tuberculosis of the hip and advised an immediate operation. On my return to the city I gave the child a cutaneous test with negative results and in two weeks she was well and has remained so since.

In closing I wish to emphasize the fact that fine crackling rales often constitute the only physical signs to be found in incipient cases of pulmonary tuberculosis and if persistently localized in one lung may be considered almost pathognomonic of this disease. These rales are usually best heard at the end of inspiration, especially if preceded by a cough. They often do not appear on quiet respiration or even on moderately deep breathing; but a deep expiration followed by a slight cough will render them audible. They are most frequently heard in the upper lobe above or below the clavicle, or above the scapula, or along the inner border of the scapula when the patient's hand is placed upon the opposite shoulder. Physical signs alone, however, do not always enable us to differentiate between an acute, active, lesion and an inactive or long healed one. Identically the same sounds may occasionally be heard over a lung that has not been the seat of active disease for 20 years or more as over one with a recent lesion. This differentiation must be made in large part from the history, pulse, temperature and other symptoms.

It must be borne in mind that even if a skin test is positive, it does not signify that the symptoms present in any given case are necessarily due to tuberculosis. I was recently called to see a woman 30 years of age who had been ill three months with irregular fever, sweating, occasional delirium and gradual fail-

ure of flesh and strength. A skin test had been given with positive results, and three physicians had diagnosed acute tuberculosis. Careful inquiry into her past history elicited the fact that when 14 years of age she had a period of ill health attended with more or less cough extending over a year. Five years later she had a severe attack of inflammatory rheumatism and had been troubled since with more or less shortness of breath on exertion. Physical examination of the lungs was negative, but a loud systolic murmur was heard over the mitral area which was conducted to the left and plainly heard under the angle of the scapula. The apex beat was found in the sixth interspace, four and one-half inches from the median line. The clinical picture of malignant endocarditis was made complete by finding a petechial rash resembling that of cerebrospinal fever scattered over the trunk and lower extremities.

The *Handbuch der Technik und Methodik der Immunitätsforschung*, volume 1, chapter, 35, 1908, contains an article by von Pirquet on "Kutane and Konjunctival Tuberculin Reaction" in which he arrives at some very interesting conclusions concerning the cutaneous test. He believes there is a close relation between the activity of the lesion, the intensity of the reaction and the time of its appearance; i. e., if a reaction comes on early and the inflammatory character (redness, swelling, and papule formation) is marked, it indicates an active lesion. A negative reaction signifies in general that the organism is not already infected. But a negative reaction may sometimes result from lack of sensitiveness of the individual (as in the final stages of the disease), from the use of weak doses of tuberculin, or from other conditions not yet understood. Some cases react to the hypodermic use of tuberculin that do not respond to the ophthalmic or cutaneous tests, such as

the eight cases already referred to by the writer. Von Pirquet explains this by the fact that in the febrile test increasing doses of tuberculin can be given, but in the cutaneous test a stronger solution than 100 per cent cannot be obtained. Most cases react with a 10 per cent solution or stronger, but certain persons react only to undiluted tuberculin. Von Pirquet describes five different reactions following the application of tuberculin to the skin in infected individuals. First—the traumatic reaction, consisting of a slight redness following the inoculation in about an hour and a half and disappearing as a rule after an hour or two. Second—the negative reaction. Third—the positive reaction, which appears about three hours after the disappearance of the traumatic reaction, and which does not appear about the central or control scarification. The redness increases until its maximum is reached usually in from 12 to 24 hours. The exudation about the scarified area can be detected by touch better than by sight. Fourth—the torpid reaction, coming on after 24 hours, and usually seen in clinically unsuspected cases in young children or those of more advanced age. Fifth—The Cachectic reaction in which

the papules are very pale, usually seen in scrofulous children.

Wolff-Eisner believes the cutaneous test to be of great prognostic value in that a positive reaction indicates the existence of a capacity to react, whereas unresponsiveness to the reaction indicates a lack of this capacity. According to his observation the absence of the reactive capacity is in all cases to be regarded as an ominous sign, whilst a positive reaction, on the other hand, merely indicates that the body is capable of fighting a battle.

The most improved method of making the Von Pirquet test at the present time is to take various strengths of tuberculin ranging from 5% to 100% or pure tuberculin, make at least six to eight scarifications on the arm and apply a different strength to each scarification. It is believed by some that the amount of reaction occurring from the various strengths can be interpreted as an indication of the degree of progress of the disease. This in the mind of the writer is still unproved. At present Von Pirquet seems to use either a 100% tuberculin alone, or a series of 25%, 50% and 100% Koch's old tuberculin.

DISCUSSION.

H. J. Hartz, Detroit. The most effective weapon against the perpetuation of tuberculosis is the early recognition of the disease at a time when a cure may be effected and before the lungs have broken down and expectoration has begun. At this time there has been no opportunity for the spread of the disease, and the home, shop, and environment of the patient is free from the bacillus of tuberculosis. In short, the diagnosis must be made while the closed or quiescent form of pulmonary tuberculosis is present, before it is converted into the open or active form with expectoration. Obviously this can not be done by Federal, State or Municipal legislation alone, but becomes the work of the medical profession. With the reasonable co-operation of the public this could be accomplished. It is estimated that a

mortality rate of a given community is only one-tenth of the real number affected by consumption, hence for every death there may be found nine subjects who are afflicted, and among that number the larger proportion represent incipient cases. The message from Dr. Johnston on Early Diagnosis of Pulmonary Tuberculosis is therefore timely, and deserves the closest scrutiny. It is admirably designed to help us distinguish between the incipient and moderately advanced cases of consumption. It must be admitted that it is difficult to always make an early diagnosis, since tuberculosis is often one of the concealed infections, and the primary colonization of the germs is so insidious as not to attract the attention of patient or physician until necrosis has caused some destruction of lung tissue. This condition

causes a combination of symptoms, such as rise in pulse rate and temperature, hypersecretion of mucus, slight cough, loss of appetite and malaise. Many individuals undergo infection with tuberculosis while attending to their routine duties,—the slight indisposition is not heeded and the process heals without medical attention, to become what is known as quiescent or latent tuberculosis of the lymphatic glands, or of the lungs. Repeated attacks of infections with the bacilli of tuberculosis, or those of LaGrippe, Pneumonia or Measles in children convert the closed form of tuberculosis into that of the open form, with expectoration. Usually then, medical aid is sought when the process is found to be moderately advanced rather than incipient. The sputum shows that the organisms of sepsis have joined those of tuberculosis, constituting what is known as mixed infection. The incipient cases should be sought rather than waited for by physicians. Many patients would be grateful to the physician who could make an early diagnosis, and promptly advise a change of occupation or institute a hygienic and dietetic regime that would often prevent the further progress of the disease. Many of the incipient cases may be found among the inmates of that home in which a tuberculosis subject has lived who suffered from the open form of the disease; these latent cases present no special evidence of tuberculosis in their appearance, but upon careful examination of the apices by mild percussion, relative dullness is noted. The inspiratory sounds differ when both sides of the chest are compared, and instead of the normal soft vesicular murmur, the harsh bronchovesicular note is heard and sometimes the vesicular murmur is very much diminished and shortened. Children living in homes with tuberculosis subjects are nearly always infected, because of greater permeability of their membranes and the intimate association forced upon them.

Dr. Johnston very properly emphasized the lymphatic type of tuberculosis in the child. It is an axiom with pathologists that "early tuberculosis in the child is found in the bronchial glands." This is also true of many cases of tuberculosis of the adult, because irrespective of the route of invasion, whether by way of the lungs with air or through the intestinal tract with food, the bacilli are taken up by the lymph channels and transported to the glands, where they are held, to be made harmless by phagocytosis or they may gain access to the lungs,—usually the apices by way of the blood stream which always

passes through the lungs before reaching other parts. Primarily tuberculosis is nearly always a lymphatic process invading the lungs secondarily. The diagnosis of lymphatic tuberculosis is made by finding the hypertrophy of the glands. In the mediastinal space the hypertrophy may by pressure upon the sympathetic nerves induce unequal dilatation of the pupil and gastric disturbance. In addition the physical signs on percussion and auscultation over the region, then the reaction to the cutaneous and ocular test as well as symptoms of fever and malaise.

Happily we are now in possession of two specific methods of diagnosis which are nearly accurate and harmless when precautions are observed in their application. I refer to the conjunctival reaction of Wolff-Eisner and Calmette, suitable for adults, and the cutaneous test by V. Pirquet for children. The subcutaneous injection of tuberculin for diagnostic purpose is not free from danger as it may soften the capsule of the tubercle, thereby causing spreading of the disease, besides it has the disadvantage of reacting in the presence of latent as well as active tuberculosis. In some patients a reaction may be obtained from their own tuberculin by prescribing exercise, such as an hour's walk; then the temperature will be found to be one-half to one degree higher, and the pulse and respiration increased; supposed to be caused by an increase of absorption of toxin,—thus by a process of auto-inoculation the existence of an incipient process may be corroborated. The specific test and the X-Ray examination afford invaluable corroboration, but in the main physicians must depend mostly upon the old and tried classical methods. First the family history is of great value, then the personal history, occupation, intimacy with consumptives who expectorate, the objective and subjective symptoms. The patient should undergo inspection, palpation, percussion and auscultation while the chest is free from clothing.

To summarize, the earliest evidences of pulmonary tuberculosis consist of a combination of symptoms, which according to such masters of Phthisio-therapy as Trudeau of the Adirondacks and Janeway and Knopf of New York should be considered in arriving at a diagnosis of incipient tuberculosis. The most important are:

1. A cough lasting a month, except whooping cough.
2. Poor appetite (especially in the morning), and indigestion, loss of weight and strength, and pallor (generally "run down").

3. Hoarseness, lasting several months.
4. Spitting, especially in the morning.
5. Night sweats.
6. Spitting blood.
7. Fever in the afternoon, shown by flushed face and tired feeling.

Any, several, or all of these symptoms coming after a severe cold, grippe, bronchitis, whooping cough, measles, typhoid fever, or any other acute disease, may indicate tuberculosis.

Frequent physical examinations should be made. The germs may not be found the first time the sputum is examined, and indeed they

may not be found at all until the disease is far advanced, and suddenly reveals itself in the fulminating type with symptoms resembling typhoid fever or malaise. Light percussion over the apex region and the posterior border of the lung after the method of "Krönig" is most valuable in discovering slight infiltrations. Auscultation will substantiate the suspicion when a harsh murmur is heard representing a mixture of the bronchial and vesicular breathing. Intermittent respiration upon inspiration, a pleuritic rub, or prolonged murmur may be detected upon expiration, the vocal fremitus is increased and the resonance is found impaired over the affected area.

OBSERVATIONS ON THE GENERAL PRINCIPLES OF HOSPITAL ORGANIZATION*

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Simplest Form of Organization.—In any small establishment, whether store, factory, or hospital, so long as one man assumes absolute control, that man is the organization, and, if he is capable and attentive to details of management, and is wise in the treatment of his men, efficiency and harmony are a natural consequence. Such a man may have little or no conception of that elaborate division of labor necessary for the successful management of a great industrial plant or department store, but within his sphere his organization may approach the ideal.

Hospitals lack Efficiency because old Organization is Outgrown.—Hospitals in this country, whatever may be said of their business administration, are on the medical side, very largely still laboring under a system of organization essentially outgrown. They have, generally

speaking, been established when the cities where they are located were mere towns. It was so arranged as to give every influential doctor in the community a place, in order that the institution might derive as great financial support as possible. When the towns became cities of greater consequence, the outgrown plan of organization has been suffered to remain; hence the hospitals, in their development and their contribution to the general welfare, have not kept pace with that to be seen in enterprises not thus hampered. The work accomplished has, under these conditions, been chiefly that of *individuals*, working, it is true, with the assistance of the hospital; but it cannot be denied that very far from what is possible or what may reasonably be expected, has come out of these institutions as a result of direct, concerted institutional effort.

Trusteeship; its Responsibilities and its Pleasures as an Avocation.—The ma-

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majority of hospitals are governed by boards of trustees, membership in which has been looked upon as largely honorary; but the only honor which can permanently attach to these positions is that which comes as recompense for sacrifice in behalf of the institution. To derive this recompense, board-members must have a fair understanding of hospital methods in general, and of what is being done by the more progressive institutions of the same class to broaden their scope of usefulness. A few men, connected with such boards, will go further and devote a part of their leisure to special studies, in the same effort; they will compare methods and results with those of the best institutions to be found, in order that they may know how to make theirs the best possible under the circumstances.

The board-member who thus makes the hospital his avocation sees first, of course, the restoration of many sufferers to health and to their ordinary pursuits of life, but further he comes to feel that he is part of a great educational institution, the effects of which reach the community in many ways. Upon the proper administration of the trust placed in his hands, largely depends the development of capable men and women who, as physicians and nurses, are to assume responsibility for the care of the sick in the community outside the institution. Of ever-increasing importance, though more recently recognized, is that still greater responsibility to give favorable opportunity for those who assume direction of medical charity within the institution to crystalize the experience thus gained and make it available to those who are fighting the very causes of disease. In this last-named function of the hospital, the trustee may well have an especial interest. Here lies the spirit of the age. Many there are who have not yet grasped it, but the difference is vast between the effort to relieve a sufferer

already stricken, with odds often against the success of the effort, and that far-reaching aim which would remove the source of danger. In this work, the trustee should keep in close touch with the staff; he should seek personal contact with the workers in the different departments, to learn of their purposes, their ideals, and their accomplishments.

Possibilities of the Small Hospital.—

Hospital organization and management will necessarily vary much according to the size of the institution and its surroundings, as regards both the profession and the community. A small hospital that is personally conducted by one man, especially if it be for the accommodation of his own specialized practice, will require no staff and little organization. If such a small hospital accommodates all classes of cases, a staff of assistants or of associates will become necessary whenever the head of the institution recognizes that there is more work than he can do or that there are certain cases which some one else, by reason of greater special experience, can better care for. This sets up a kind of co-operation, which in the absence of any free-bed or out-patient service, is purely for business ends. Scientific work, under the circumstances, is a matter of individual interest and effort only. Such hospitals, even with their limited scope, serve a very useful purpose in smaller towns, where they become the means of supplying to the local profession certain laboratory advantages that aid in raising the general standard of practice in the community.

Conditions in the Medium-sized Hospitals.—

In medium-sized hospitals, of cities generally, we find a variety of developmental conditions, not all equally logical nor equally fortunate in results. Some of them, having merely grown larger, have in no wise taken account of the needs of the work to be done. In

spite of the fact that considerable sums have been accumulated for the dispensing of charity, the men who make up the staff go on doing all kinds of work and the patients fail to gain the benefits of a natural differentiation and consequent division of labor. In a certain proportion of institutions, a differentiation of special fields of practice has been brought about, but the number of men to do the work has been out of all relation to the number of patients to be attended. The result has usually been that coördinate appointments were made to the same service, a condition which could be met in one of two ways. First and rarely, if there were a large enough material, each of such coördinate heads of a department could be given his own wards or division, a plan which would have the advantage of setting up a rivalry in good work in corresponding lines thus made comparable; and, on the other hand, the whole material could be, as it usually was, turned over to the men who held appointments, each in his turn.

"Rotation" and its Effects.—This plan of "rotation," as it is called, which in every case compromises the interest of the institution, means that no consistent plan of treatment of the patients or of study of the materials afforded by their cases is possible; and, as a result, *the hospital as such does no scientific work.* Everything of this nature is the individual work of men who, taking advantage of what the hospital affords, may or may not do valuable work, but no united effort by the staff to make the best use of the material in a way to become a credit to the institution is possible under this shifting, unstable plan.

In this connection, let me quote the words of Dr. W. S. Thayer, of The Johns Hopkins Hospital, in an address at the New Orleans meeting of the American Medical Association, in 1903:

"The most serious impediment in the way of

advance in our methods of clinical study and teaching is the widespread institution of *rotating* services in our hospitals. In no service where the head of the department changes every three or four months can really valuable investigation be accomplished."

And the editor of the *Journal of the American Medical Association*, commenting on the address of Doctor Thayer at the time, said:

"Dr. Thayer refers to some of the evident short-comings of the majority of our public and semi-public hospitals. He says that the most serious hindrance to advance in clinical study and teaching is the prevalent custom of rotation of hospital services. Probably no competent, thoughtful medical man can question the force of this criticism Nothing but perfunctory, routine work can be expected when the chief of a service changes every three to six months. In business undertakings of all kinds, in schools and other institutions such rotation of service does not obtain. . . . The rotating service is a makeshift to lessen the individual burden. If our hospitals are to grow in usefulness and develop, this makeshift must give way to the fully organized services with permanent chiefs and graduated staffs of assistants down to the interne and clinical clerk. . . . In every large city of the United States are public and semi-public hospitals in which the work suffers from the lack of adequate organization to such an extent that conditions in many places really cannot stand with credit even hasty investigation. The first step in this advance must come from the medical profession itself. It is not creditable to a great profession like ours that its members permit themselves to be party to slipshod methods of hospital work merely because politicians and lay managers will not or do not know enough to institute rational principles into the hospitals under their charge. . . . We hope that continued agitation of this subject soon will awake the altruistic spirit that ever must guide the medical profession, and that systematic efforts be made to improve the present conditions in our general hospitals."

A Higher Type of Hospital.—These quotations point the way to a higher type of hospital, in which a natural differentiation and division of labor does obtain

and efficiency of service is favored by a definite placing of responsibility for the work to be done, and by a fair acknowledgement of credit for results accomplished. Here appears the possibility of real coöperation by the whole staff of the institution in the aim to further medical science.

The Largest Hospitals.—Of conditions in the largest hospitals, two general facts are to be observed. First, as with those in cities of somewhat smaller size, many are prevented from gaining the advantages of rational differentiation and harmonious coöperation, by prejudice and the domination of selfish interests to which the hospital has long been sacrificed. Rotation in service remains the rule and the greater the number of workers in each department who are not needed, the weaker the department and the greater the degree of sacrifice on the part of the hospital. Any scientific advance made is wholly due to personal effort. Second, those men who exercise a predominating influence with the governing body sometimes appropriate to their own use the larger part of the freed material and bring some prominence to the institution by becoming great themselves. These men find this organization, or rather lack of organization, to their advantage, but it must be recognized that it would be better for the institution and the community if new branches of the work were created and developed rather than that one man be allowed to monopolize the clinical material over so broad a field. The cases would thus be more carefully studied and more workers would be given opportunities by increasing the number of departments. The organization of any one department should include *as many men as are necessary to do the work well*; there should be one responsible head, and he should have an assistant capable of assuming the work for any short period during which the regular director

may be absent. If the department at times has more material than one man, with his assistant, can satisfactorily care for, then an "associate" should be appointed.

The possibility open to the largest hospitals of developing a powerful agency in the fight against disease, has been clearly illustrated by what has been done at Johns Hopkins. To be sure we see here the directing influence of the university and a peculiarly brilliant aggregation of medical minds filled with the purpose of searching for truth for its own sake, and some will say that nowhere else in America do conditions make such an effort possible. This is only relatively true; men trained in these surroundings or at any of the best medical schools know how to carry on the same work and with the same spirit under other conditions. Too often such men will be found "going to seed" if left to nothing but the opportunities afforded by a private practice, while, in an institution, not to work and grow would be held to be a disgrace. The quantity of work possible might not seem large as compared with that turned out from such a hospital as Johns Hopkins, but if the men were true to the traditions of their teaching, nothing could prevent the institution from deriving a reputation for the quality of its work.

Incidentally it may be mentioned the ideal of what an organization of this kind may accomplish, with plenty of means at its command, is just now being shown in that marvel of scientific possibilities, the Rockefeller Institute. Here again are conditions which cannot ordinarily be duplicated, but much can be found which may inspire and lead to results, if only the spirit of the institution be appropriated.

Adaptation of Organization to varying Conditions.—In hospitals which accommodate only pay patients, scientific work depends wholly upon individual effort,

except in so far as the laboratory may be said to be coöperative. Moreover the records, especially those of the clinical side, cannot from private patients be treated with the same freedom as would be perfectly proper in the free-bed cases. In mixed hospitals, with both free and pay services, the organization of the free services, so as to make them actively alive to the needs of medical science and their own opportunity, would appreciably raise the standard of practice upon the pay side, as well as influencing favorably that of the whole community. It is true that in all but the largest cities the material will rarely be large enough to run parallel services in the same department and thus, on a rational basis, multiply opportunities for clinical work. Not every one in a hospital can be the head of a department, but if there is in the staff any true spirit of research, a spirit not prompted by ulterior ends, there will be no trouble in finding men willing to serve as assistants and associates to "directors" of departments, regardless of questions of mere prestige and precedence. The higher the dignity and general standard of "assistants" in a hospital, the greater the hope of the institution becoming really great and of continuing so. For the recognition and to a degree the endorsement of the best men in the profession by the hospital, it is well to enroll a separate staff, which may be called the "visiting" staff as distinguished from the "attending" staff. The latter would have full charge of the free work, while the "visiting" staff would have the freedom of the hospital for their pay practice. In this way the advantages of a "closed" hospital could be had, while its privileges would not be unnecessarily restricted. If it is preferred to be still more liberal, then a list of physicians in the city eligible to practice in the hospital should be kept by the hospital board, and any man of integrity and professional decency should

be registered if the accommodations of the hospital will permit.

What the Organization should provide.

—It goes without saying that the best man available must be chosen to head and direct the work in each department of practice in the institution; and this "directorship of the department" should be *the unit from which the whole organization is built up*. Within his own department, this director should be interfered with as little as possible, and still assure the hospital the most fruitful results from the work of his department and help it to relate itself best to the common aims of all departments. Collectively a "council," to be composed of all such directors of departments, should be conceived of as the mainstay of the board of trustees in an advisory capacity on all matters relating to medical or institutional policy.

For purposes of efficient administration, an *executive branch* of the hospital management must be created, and upon the wise supervision of this branch by the board of trustees, so as to guard against abuses of the authority necessarily conferred, will depend, in large measure, the success of such administration. The practical method of carrying out this supervision will appear later. In any hospital that has come to what we have called the medium size, the necessity becomes apparent for the division of the departments for administrative purposes, and in any such separation it is important that the "divisions" shall be formed by a grouping of the departments in accordance with *natural*, common lines of interest, rather than by an arbitrary parcelling off for prudential considerations. In a hospital which is conceived to be progressive and seeking to develop its scientific possibilities, it would be logical to place all the agencies of research, such as the laboratories, the case-records, the library, and the publication

of scientific reports, under the general supervision of a "chief," and those functions taken together might be said to constitute a division of "laboratory diagnosis and research." In the same way a division is formed by those departments of practice in the hospital, in which treatment is chiefly surgical; and the interests of this group could be watched over by a "chief of the division of surgery." Finally a division of "medicine" would likewise be constituted by those departments in which treatment was not distinctly, or at least primarily, surgical. The grouping of departments thus into natural divisions provides, in the chiefs who administer the affairs of each, an *executive committee* that readily brings the board of trustees into immediate touch with any department, carrying to the workers the will of the board and acquainting the board with the needs of the various departments. In matters of greater moment, a formal expression by the "council" in deliberative session and a written communication giving a report of these deliberations would be the natural course.

The Head of the Staff.—The question of the head of the staff is one which must be determined by the conditions presented in the particular institution. There can be little question that, especially in the largest hospitals, the "medical superintendent," as that term is used in the Johns Hopkins and other hospitals, is practically a necessity. By this official the hospital is kept in constant touch with the board of trustees, almost as completely in fact as though the board were in constant session. An executive committee, such as I have outlined, then goes to this representative of the board rather than to the board itself. In smaller, medium-sized hospitals, the practical consideration of expense may lead many boards to decide against employing this official. It must be understood that only a man peculiarly qual-

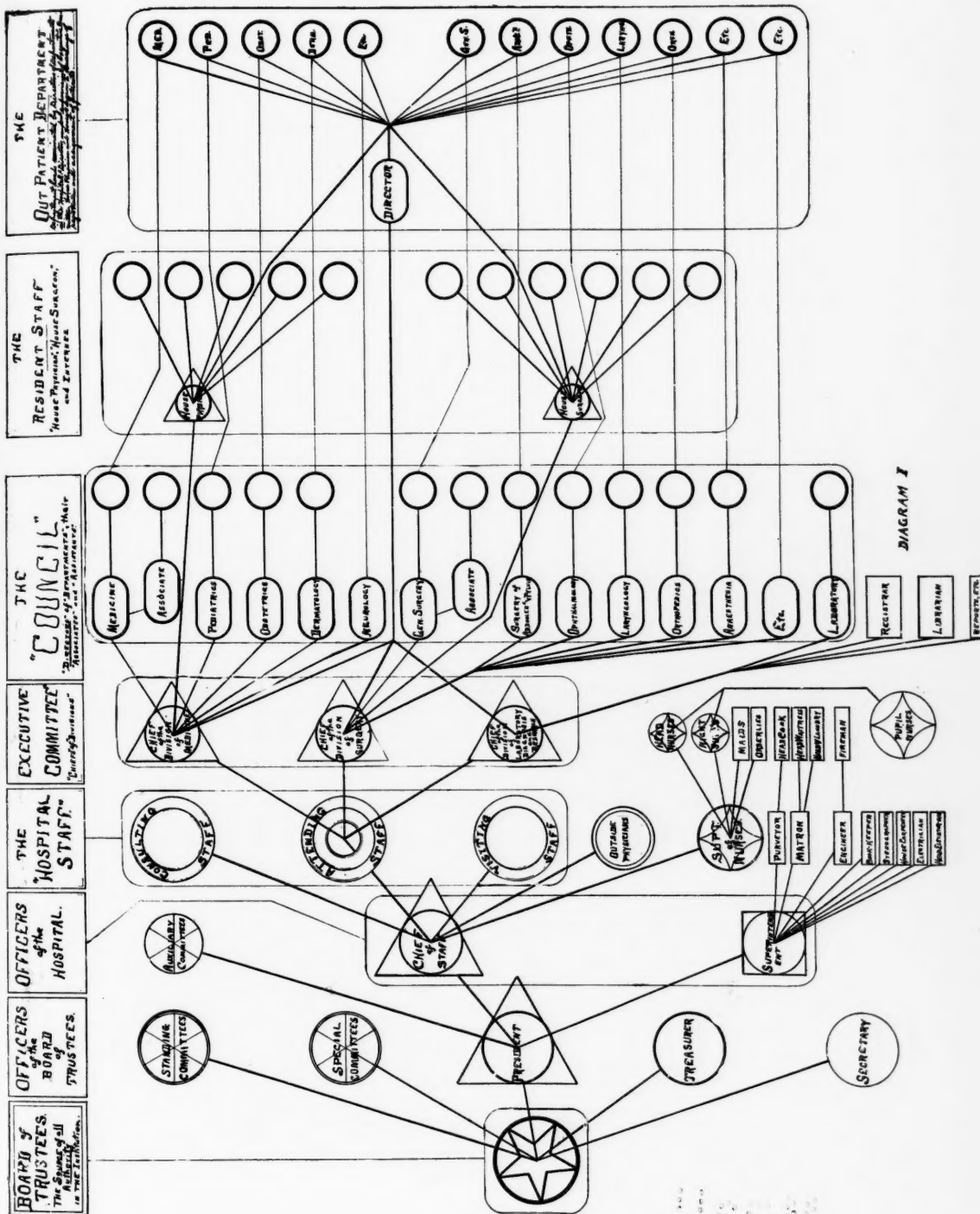
ified by breadth of experience and of outlook as well as depth of interest in all the functions of the institution, should be clothed with the amount of authority and responsibility necessary to properly administer this office. A smaller man will prostitute it to his own ends or allow others to make him their tool, and when a man is found who meets the qualifications, he will be able practically to name his own salary, and properly so; and he should be given to understand that his tenure is practically assured.

If the institution cannot afford this desirable condition, then it remains to bring the working force in the institution into the closest possible touch with the board in other ways. As above pointed out, the executive committee should be required to render its reports regularly to the board in session. This will give the board a close-hand view of the progress of affairs relating to all departments. For those matters which do not fall within the scope of any one division, the *chairman of this executive committee*, whether or not he be dignified with the title of "chief of staff," would be the one to answer. Much of the work of supervision that ordinarily would fall to the "medical superintendent" would by this plan be assumed by the executive committee, especially the chief of the research division.

Why is the "Council" necessary?—It remains to be shown what the functions of the "council" should be. While this is constituted by the responsible heads, or "directors," of all the departments as the voting members, the "assistants" should be invited to take part in the discussion of any matter under consideration. It is recognized in industrial enterprises that the more intelligent the workers and the more they can be made to feel a personal interest in and responsibility for the work in their charge, the better the results in the output. We may here see a further similarity if we

DIAGRAM I.

Plan of organization in which cooperation between the heads of departments gives a stimulus to combined, institutional effort, while that between the Board of Trustees and these heads of departments collectively, in Council, assures efficiency in the executive offices. The "Executive Committee", composed of Chiefs of the Divisions, would be chosen to look after the interests of departments in their respective divisions; the Chairman of this executive committee, or Chief of Staff, would, with the assistance of the committee, have supervision of the more general interests of the hospital, so far as medical considerations were involved. The means of expressing any disapproval of methods of the executive officers, or of communicating its wish on any relevant subject, as well as of nominating candidates to fill vacancies to any place on the staff, should always be open to the Council; but this expression by the Council would be received by the Board as advisory and not mandatory. By this plan the President of the board of trustees or the Chairman of its most important committee can be constituted its representative for practical purposes when the board is not in session.



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assume that the individual worker is, like the institution for which he is working, to receive his reward in consequence of sacrifice of temporary self-interest and in terms of satisfaction in results. He thus enters what is really a profit-sharing concern. With sufficiently intelligent workers, this plan has been demonstrated to be most satisfactory in the industrial world, and, if we are compelled to admit that a similar plan could not be applied to hospitals, it would seriously reflect upon the reputed intelligence of the medical profession.

To go still further with the industrial figure, it is plain that even though we should deny the worker any voice in the plans for the work the institution which he serves, the latter still is responsible for his protection and his just pay. If in a medical institution the worker receives his reward only in the reputation honestly earned by personal sacrifice, it is no less the duty of this institution to see that the worker is given freedom to work out his ideas and then is not robbed of whatever just credit may be his portion for the work. These credits make the reputation of the worker and are a measure of his usefulness to the institution and to the community; in the form of records of his cases studied, they must be carefully filed and catalogued. The worker is further put on record in the "reports" of scientific work published from time to time under the auspices of the hospital or elsewhere. Here his individual responsibility ends, but the hospital, by accumulating records and reports of cases thus carefully studied, is coöperating with that earnest class of men who are carrying on independent research on many vital questions wherever such records are available.

Recognizing then the value of such records, both to the hospital and to the worker, it is plain that the "council" would be a force behind any part of the hospital management entrusted with

their care. This is given simply as an instance of an interest which would be much better cared for if the directors of departments, in council, were given a voice before the board in all such matters. Every director should share equally in influence and opportunity to develop the work of his department; and this equality will be much more a fact if their opinions collectively expressed are placed before the board for its guidance. While the board would come more and more to respect the opinions of its staff thus expressed, the final judgment of the board, whatever it may be, should never be questioned by the staff.

Reorganization of Old Hospitals.—In any effort to reorganize older hospitals along the lines above laid down, it must be considered vital that a single, responsible head should assume direction of each department of practice. As many assistants as are necessary to do the work well should be appointed by the board upon the nomination of the director. "Associate directors" may be appointed in any department to care for the department in any prolonged absence of the director or to take part in the regular work at times when there is a surfeit of material. In either case however the responsibility for making the work of the department continuous and of seeing that scientific considerations are not neglected, rests with the director himself.

It may be found that professional feeling runs so high that a compromise is demanded. The old rotation in services dies hard. If the hospital board is helpless, then this much of compromise may be admitted without actually putting out the spark of vitality in the reorganization: the men who have "made the institution great" may be appointed to these "associateships" as a means of satisfying considerations of dignity. If appointments to directorship are made on merit only, regardless of previous rela-

DIAGRAM II.

Plan of organization where the authority of the Board of Trustees is centered in one man who is thus made responsible for the whole administration, both medical and financial. Only a man of rare qualifications, and one who had no other interests in business or in medical practice, could assume to administer wisely and fairly so large a trust, and he would command a salary correspondingly large. He should be provided with a residence at the hospital and should be in practically constant attendance. This plan of organization, in the hands of the right kind of man as "medical superintendent", would most certainly assure a future for the hospital as a progressive and scientific institution. In the hands of one not properly qualified, it offers the way to correspondingly marked abuses. For this reason, the institution of a "Council", of the heads of the departments of practice in the hospital, remains still a valuable function in advising the board of trustees. The broad-minded, capable superintendent will welcome such criticism as may be offered and such suggestions as may be made in this way.

PLAN OF HOSPITAL ORGANIZATION UNDER A "MEDICAL SUPERINTENDENT."

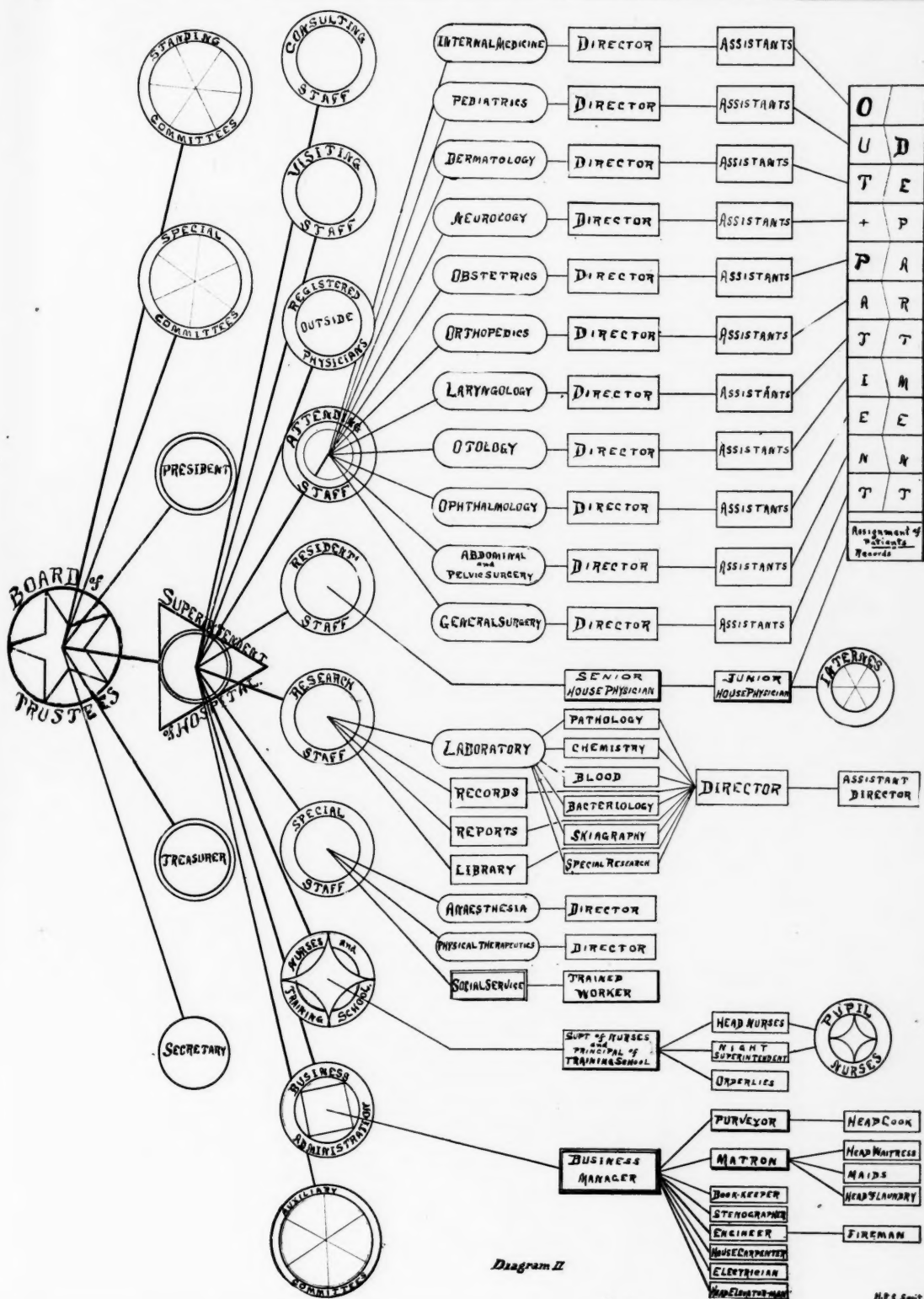


Diagram II

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tion to the hospital staff, then, with a reasonable assurance of harmony, the institution should begin soon to forget its past and to wake up to its opportunity.

An age-limit is also an important consideration in the reorganization of these institutions. It is better that a man approaching the time when he is to be naturally retired should know it and be prepared for it rather than have his pride injured or that the hospital be made to suffer for the fact that he has none. When a man has had such a service for fifteen or twenty years, he should have accumulated records and experience enough so that he will be glad to have relief from the routine of hospital responsibilities in order to work over his accumulated material for publication. In some of the best hospitals, this idea is carried out even farther, so as to limit the period of service quite regardless of age, but there would seem to be less reason for such a provision. In the plan suggested above, of appointing associate directors for prudential reasons, the age-limit would be a means of reducing conditions to normal by a natural process of elimination.

Hospital Ideals in General.—Besides the general aims of hospitals to relieve physical distress and to promote the public welfare in educational and scientific ways, it is coming to be recognized that the progressive hospital must touch human interest in still other quarters. In the best hospitals of the eastern states, the so-called "social service" is being taken up with enthusiasm and success. In the hands of the trained worker, this service, especially in connection with an

efficient out-patient department, is of great practical assistance to the hospital; as well as bringing help to a greater number of sufferers. Every charitable institution is to some degree imposed upon by those unworthy of receiving its benefits. Such deceit will not so often be successful if patients, even in part, are visited at their homes; and on the other hand much well-directed charity can be brought to helpless and hopeless men and women in this way who would leave the ordinary free dispensary in despair. In this same work is a large possibility in the practical training of nurses, so largely left at present to the necessarily artificial conditions inside the hospitals. Nurses will more early and certainly attain that professional spirit that characterizes the one worthy of her calling when they learn their art in part amid the surroundings and with the sacrifice which service in visiting such people in their distress entails.

In such an institution as I have outlined, in which the spirit of self-sacrifice, rather than of sacrifice of the institution to personal ends, shall take hold on the workers for the sake of the work itself, the benevolent people of the community would see a reliable and efficient means of dispensing that portion of their wealth which they choose to devote to charity, and such an institution need never lack for funds to carry out any undertaking; unfortunates, in return for placing themselves under scientific observation, would receive the best treatment that science up to date can devise; the community would be served by more capable physicians and nurses; and the ethical standards of the medical profession would be favorably influenced.

Discussion.

In the discussion of the foregoing "observations," which were originally given as a talk rather than as a formal paper, a number of the younger men, who had had their experience in the Eastern hospitals, urged the employment of a "medical superintendent." As I have indicated,

this is at once admitted to be the ideal *if* it can be assured that a man sufficiently earnest, broad-minded, and independent to see always first the deepest and truest interest of the institution, will be obtained and retained. It must be admitted, however, that most men in this position would

find it difficult to submit their administration to such free discussion as I have held to be a proper function of the heads of departments in council. Practically, instead of a free interchange of opinions on matters of policy, the average man available for this place would consider that he was to grant requisitions for the needs of the work as favors to the workers, high or low. I only offer this criticism to show that, even with a "medical superintendent," the ideal is not necessarily attained. It is a fact that, with such an official embodying the authority of the board of trustees, practically the success of the plan depends upon the temper and character of *one man*; while, in the plan that I have outlined, the interests of the institution are under the constant observation and consideration of a *small body of men* close to the work, who are in a position to detect abuses and who hold the means of communicating at any time their opinions to the board.

The one other criticism offered in this discussion was that no hospital can do great work without being under the monarchical dictation of some man himself great. This would seem to suggest a comparison of the systems of government supported respectively by two great men, Napoleon and Washington. The one stood for

the principle that he, as dictator, could look out for the interests of all; the other, certainly no less great, was willing to lend the force of his greatness to a plan of government which would allow others an opportunity of showing how well they could do. Time has shown which of these plans had the element of viability.

It has been offered in criticism that the plan I submit is "unwieldy." This would certainly be a just criticism if the "council," as detailed, were made more than an advisory and nominating body. The fact that the workers are given an opportunity for free expression and criticism in such a council cannot be other than a safeguard against trouble, while the irrelevant can be practically eliminated by giving a vote upon recommendations made to the board of trustees to directors of departments only. If, in the light of such recommendations, the board of trustees will always act with perfect independence and a purpose to administer the hospital in the spirit of its trust, the plan will be found not only workable but efficient. In the same way, a check is placed upon abuses of authority in any part of the executive branch. If the executive, as is often the case, is the only one who has practical access to the board, then such abuses are invited and matters may go from bad to worse until revolution seems the only remedy.

A Few Facts.

Medicines administered by the rectum or vagina should be given in *twice* the dose by the mouth. Medicines administered by the hypodermic method should be given in *one-half* the dose by the mouth.

Be cautious in giving atropine to flaxen-haired, light-complexioned, nervous women.

Be cautious in the use of morphine subcutaneously after opiates or morphine have been given by the mouth or rectum.

The healthy mucous membrane of the bladder never absorbs medicine; an ulcerated vesical mucous membrane does.

Chloral hydrate should be exhibited with great care.

To determine the proportionate dose of a drug for a child or infant, divide dose for adult by

$$\frac{\text{Age of Child}}{\text{Age of child} + 12}$$

Eye-washes of nitrate of silver, if long used, discolor the eye.

Eye-washes containing lead are apt to leave a permanent opacity where there is any ulceration.

Children are especially susceptible to the narcotic action of opium and its alkaloids.

A catheter should never be *forced* into the bladder. All catheters should be kept perfectly clean. After each using they should be dipped in carbolized oil, washed in warm water, and, if gum elastic, be put away in zinc powder, powdered soapstone, or starch. All soft rubber articles are rendered hard and brittle by contact with oil or grease. Catheters used in puerperal cases should be rendered thoroughly aseptic.

Never attempt to reduce a hernia by force.

Use hot water for bruises, cuts, and as washes in catarrhal disease. It is superior to any liniment in rheumatism.—*Med. Summary.*

ERGOT*

DAVID INGLIS, M. D.,
Detroit.

When the invitation reached me to join with you in honor of Dr. Riley, it seemed to me that in no way could I better do so than by bringing my contribution toward that practical therapeutics which ought to be always in our minds, no matter how interesting the study of anatomy, physiology, pathology and diagnosis may be. For the end crowns the work, and the end and aim of our work is to cure the sick and alleviate suffering. Truly I think there is vastly more keen enjoyment in a careful diagnosis than in a game of chess, and a proven diagnosis is as satisfactory as the word "checkmate." 'Tis enough reward at the close of the game to say "Checkmate," but it won't do to end the game of diagnosis that way. 'Tis an ungracious thing to say, yet there are some who seem to think that a "practical" doctor is a grade below a scientific one. On the contrary, it seems to me that never before have we been face to face with such deeply scientific problems as are those which concern the interaction of the bodily organic structures, and the materials brought to them, —foods, internal secretions, and drugs. The great scientific problems before us now are those of dietetics and therapeutics.

What I bring today is not at all intended to be exhaustive, simply suggestive and drawn from daily experience.

In my younger days I pursued obstetrics a good deal, and it was then perfectly good form to give a woman a teaspoonful of Fluid Extract of Ergot at

that stage of labor when, the cervix being thoroughly dilated, the labor pains proved weak and inefficient. Given a good dose of ergot then, watch in hand I waited twenty minutes and put my watch in my pocket, for things began to happen. That great mass of unstriated muscular fibre, the uterus, now began to contract with power; evidently ergot lost no time in setting involuntary muscles at vigorous functioning. And it was not an abnormal functioning either, for when the child was expelled there followed no abnormal contractions, although it always seemed as if the general tonicity of the contracted uterus was well continued. Now, in the whole range of *Materia Medica*, how we welcome a drug which does things! Which does a definite thing, and that promptly. Here was a drug which went like a clock.

The years since then have taught me other things about ergot, or rather other forms of this same thing. For instance, called to see a robust man with an eight-day uncontrollable hiccough, one of a long line of doctors (none of whom, of course, got any fee), I sat and watched him. Hiccoughing all the time, about four times an hour he had a furious paroxysm of the spasm. Now I noticed that I could tell when the paroxysm was coming on by the fact that it was always preceded by a tremendous turgid flushing of his face and head.

I thought I could stop that, anyhow. Every constrictor fibre of his superficial arterioles let go, a complete vaso-motor relaxation was seen on the outside of his head; maybe it was the same inside!

*Read before the Calhoun County Medical Society at Battle Creek, 1908.

Pull up involuntary muscular fibres? Ergot! Out of nineteen doctors who "dropped in to see the case" I got the glory and the only fee, for a full dose of ergot paled the face, brought relief from the hiccough, and sleep. Indeed, the wife called it the "sleeping medicine."

You see the two things were but one thing—relaxed fibres in a sluggish uterus; the same in the cerebral blood vessels.

Truly here is the key to ergot, but the key unlocks many doors.

No problem is more vexatious than insomnia. Nowhere is it more difficult to decipher the why? of it, but in a good many cases the cerebral circulation is far too active, will not come down; it is in these cases that ergot does its work, and, oddly enough, it will do it in what seem to be utterly diverse cases. Those with the appearance of cerebral flushing, like my man with the hiccough, and sometimes those with a dull mentality and a sluggish general circulation.

I can only explain it to myself on this basis: Ergot restores the normal tonus of relaxed involuntary muscle fibre; it does not set up a spasm, it never does, in any doses; it is a pure muscular *tonic* of unstriated muscle. In the latter class of cases, of insomnia, those with a sluggish circulation, it facilitates the circulation by increasing the tonus.

As with insomnia, so with headache. Ergot will not help a toxic headache, but there are many headaches and, what is the same thing, "headaches" down the cervical spine which are due to cerebral or meningeal congestion, and I know of nothing as satisfactory as ergot. The trouble is to learn to give a large enough dose to take hold.

There are really two kinds of congestive headache—active and passive. In the passive sort, the venous stasis kind, I add digitalis to the ergot. The problem is to set up a good arterial flow, to set up a circulation that will carry the

sluggish venous blood out and restore vascular tonus.

These are all disorders of brief duration. But the field of ergot is far wider. If it be in truth a tonic, then comes the question of maintaining tonicity. Can it be continued? Ever since I began as a student I have heard of the toxic effect of ergot—so far I have never seen it. Peasants, driven by starvation to eat the fungus with poor rye may have been poisoned by ergot, although I strongly suspect that starvation did a great deal more damage than ergot. I have an epileptic still under my care who started on ergotin two years ago, and has never stopped it, although he needs and takes fewer pills per day than he did at first. When he came to me he was a battered, scarred, pustular, bromide epileptic, a charity case. Now he earns his regular salary, wears a clean collar and a smile, and has a little nocturnal fit occasionally. One of three things did it—Providence, stopping the bromides, or ergotin. I leave it to you to distribute the credit. It would be just as foolish to attribute all cases of epilepsy to vaso-motor irregularity as in the case of headaches or insomnia. Nevertheless, the very periodicity of epilepsy suggests recurring periods of vaso-motor storm. Notice how close is the relationship of epilepsy and migraine; certainly the latter, whatever be the cause, is a vaso-motor storm, and I think we will all agree that in many cases epilepsy is likewise. How often we can trace both migraine and epilepsy to the general vascular irregularities which precede, accompany, or follow the menstrual time; we do not know what internal secretion it is which so upsets the vaso-motor control near the menstrual time, or what vaso-motor tonic is lacking when the menopause, natural or operative, has taken place with the consequent hot flushes and many results of vaso-motor disturbance, but that both epilepsy and migraine stand in close re-

lation with these disturbances is evident.

Again, nocturnal epilepsy evidently is related to that vascular change which comes with sleep. Do not misunderstand me. I personally am of the opinion that toxemia plays a great part in the causation of epilepsy as of migraine, but toxemia is not the only cause. Now in so far as these affections are dependent upon vaso-motor storms, it stands to reason that we may accomplish much if we can set up and maintain a healthy vascular tonus. I know of no more useful drug than ergot long continued.

Once more, it would be foolish to set up one explanation of the manifold forms of neurasthenia, but I think no one has watched the plump, apparently well nourished neurasthenic with his everlasting easy "give out," without feeling that if one could only get up steam, get some good, steady, even circulation established, things might go better. Ergot is not a panacea, but alone, or with digitalis, it does great good in some cases.

In exophthalmic goitre, we are dealing with what is probably the most profound vaso-motor affection which we ever meet. Here, if anywhere, some means of steadying the vaso-motor function is the one thing needed to meet the manifold symptoms. Theoretically ergot ought to be the drug, and in mild cases it does do some good, but the difficulty seems to be that the thyroid is putting into the circulation a vaso-motor paralyzer too fast, too strong for us to counteract. Nevertheless, the very phenomena of Graves' disease demonstrate the power of substances in the blood to profoundly alter the vaso-motor tonus.

The thyroid in health puts into the blood constantly a small quantity of an internal secretion, which certainly exercises a marvelous effect upon circulation and metabolism. The bodily structures depend on this chemical regulator. When in the field of nervous or mental diseases,

or other bodily disease, or surgical shock, it becomes a question of establishing or maintaining steady tonus of the vaso-motor system, it is logical to use, for long periods if needed, something which will do the opposite of what the thyroid constantly does in Graves' disease. In normal people we have excellent reason to believe that this is done by internal secretions, notably the suprarenal capsules. Certainly if we can set nature to doing the work in her own way, that is best, and our success in treating myxedema by thyroid is the basis of our hopes for an equally great success by other glandular chemicals, but until then ergot comes nearest to doing the work.

Time fails me to go into all phases of the rational use of ergot, but let me mention this: What we call erectile tissue plays a most important part in the sexual apparatus of both men and women, and a study of sexual anomalies shows that not a few depend on failure of the physiological tonus. I know of nothing which will do better service in excessive seminal emissions, and as an aphrodisiac to women, it is better than strychnia.

We have in the nose erectile tissue analogous to that in the pudenda, and the phenomena of hay fever depend on the sudden turgescence of that erectile tissue. Here again ergot finds a place.

As to manner of use: Personally, I mainly use ergotin by the stomach. Fluid extract of ergot disagrees with so many people and I find the results from ergotin equally reliable.

Alfred T. Livingstone, of Jamestown, N. Y., uses it hypodermically—indeed, advocates that use almost entirely. I do not find it necessary, yet I wish to commend to you his article in the *New York Medical Record*, for November 23, 1907. He has written from time to time on ergot, and my own confidence in it has broadened since I first read his

articles some years ago. I gladly acknowledge my indebtedness to him. Like all enthusiasts, it is possible he claims too much; possibly I do so tonight, but this is my message: Try it out thoroughly. When in any department of medicine you have the problem

of lack of the normal vascular tonus, try ergot. In the whole range of the physiology of the sympathetic nervous system, try ergot. Prove it out. I believe it ought to rank alongside of digitalis as one of the old reliables.

SOME NEW INSTRUMENTS.

R. E. MERCER, M. D.,
Detroit.

Tonsil Snare. The snare shown was designed with the idea of combining lightness and convenience in use, with great power. It consists of a square steel stem, upcurved to meet the canula, a slide with windlass attached, good big thumb and finger rings and canula of shape to suit the individual user. The stem is ratchet-toothed on top to engage a fixed dog on the slide, making it self-locking, the curve in it makes the pull on the wire in a straight line. The slide combines a windlass with spring ratchet, so that it can only turn in one direction, and finger rings above and below stem, instead of on the sides, a more comfortable position for the hand in use and giving better control. The bottom ring is open in the cut, but a complete one would perhaps be as convenient. The whole snare can be readily taken apart for cleaning, is not clumsy, like the forcep handle type, engages the tonsil instantly, and has great power. It will pull a loop of any size, not limited by the length of stem or distance handles will open, through any tissue that the wire is strong enough to cut, or will break the best number 6 piano wire, on the straight pull if necessary, with ease. Canulas can be made

of any shape desired, the one shown is a very good one.

To use, pass wire through the canula and hole in windlass stem, give one turn and the wire is fastened. Take hold of snare, fingers and thumb in their proper rings, pass loop over tonsil, which should be well pulled out with forceps, if enucleation is desired, of course after freeing adhesions if necessary, and close hand. If the hand is strong or tissues soft it may cut through, but if not let hand relax, the slide will lock on stem from tensions of wire, turn windlass with finger and thumb of other hand and wire will cut through. To take apart, unscrew thumb ring, slip slide off stem, unscrew windlass key and slip off bottom ratchet collar and it is in pieces. Ordinarily all that is necessary is to unscrew top of windlass and raise hinged top of ring; it makes wire easy to remove and will permit all the cleaning, preparatory to sterilizing, that is usually necessary.

Tonsil Scissors. These scissors cut at any angle flat to the handles and can be turned instantly from left to right or back with curves reversed, by swinging around point A. The hand is down out

of the way and they are very convenient to use. As shown, however, they have one defect, cutting on closure of handles, when working on right tonsil, on open-

several years' use I have found it of so little consequence as to have been quite content to use the handle of a Tieman tonsillotome, as first designed. The re-

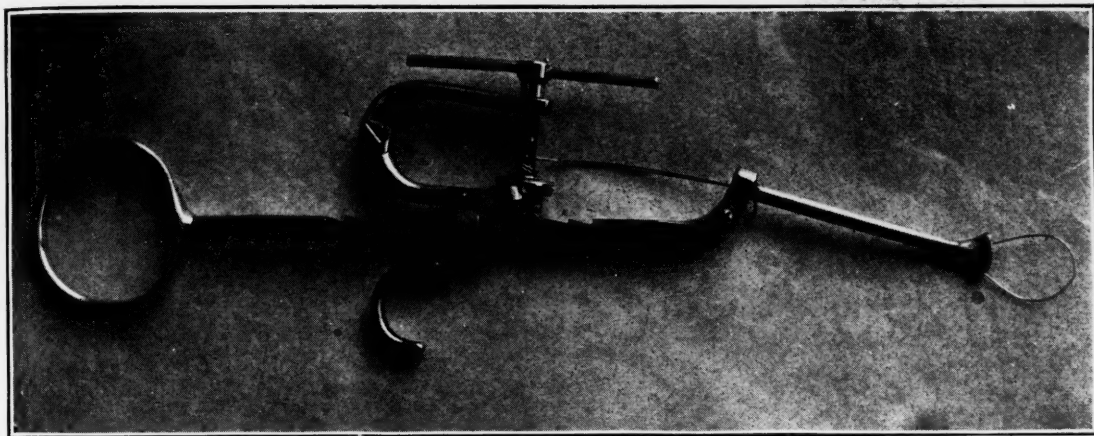


Fig. 1. Tonsil Snare.

ing when working on left. This is a defect which can be readily obviated by making the handles reversible, but in

versible handles are made in about a quarter circle curve, crossing for left, not for right, and using the same center

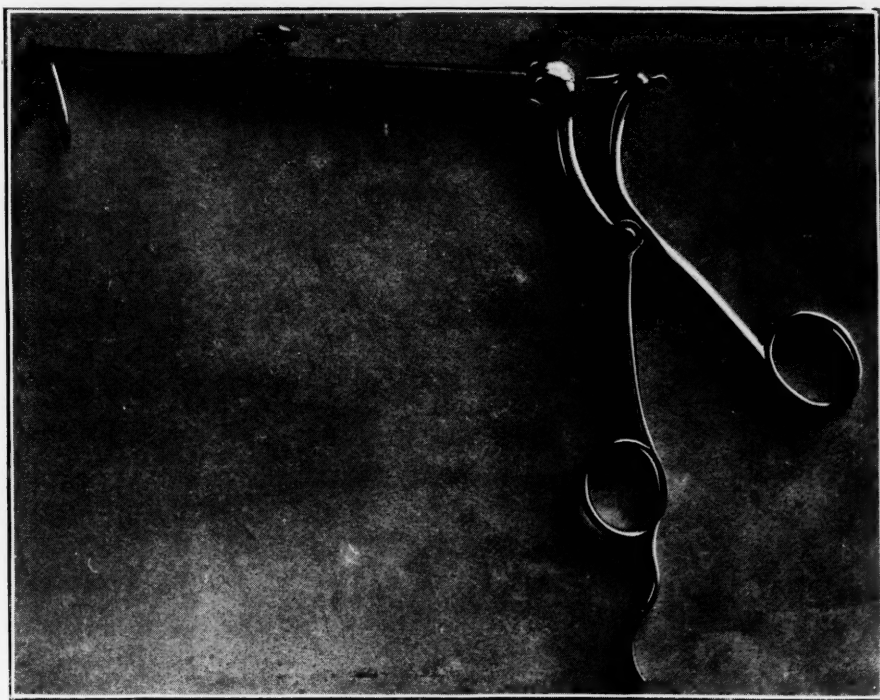


Fig. 2. Tonsil Scissors.

pin, they make the reversing more troublesome. The working parts consist of scissors mounted on a tube by one side, the other fastened to a smaller tube

a set screw, so allowing lengthening and shortening the tube, made necessary by the inner end of scissors becoming the outer in the reversed position.

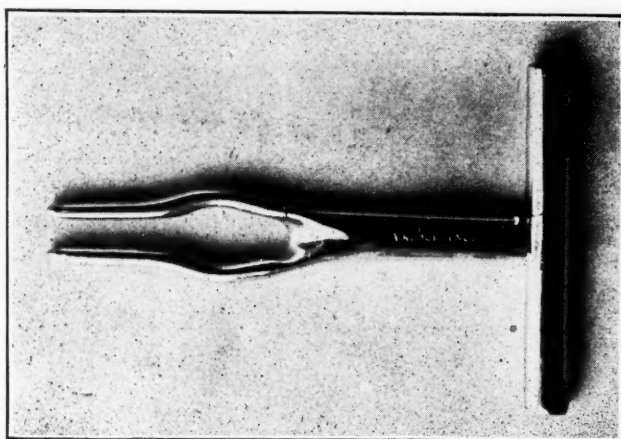


Fig. 3. Nasal Key.

which slides within the first and which in turn has an inner rod acting as an extension when necessary. The outer tube is slotted to admit thumb screw on inner tube, the inner is cut away at one

Nasal Turn Key. The cut explains itself. Turning the handle causes one jaw to push in one direction the other in the other, making a break *between the jaws*, not at some distance. It can be

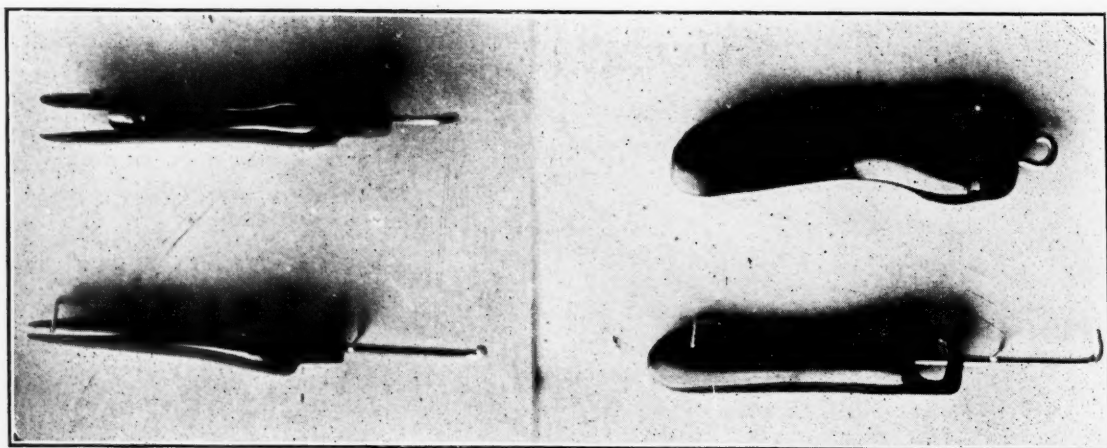


Fig. 4. Septal Splint.

end for about an inch, leaving a strap of metal which allows the other side of scissors to pass in the reversed position. The rod inside the inner is fastened by

used at any angle, for perpendicular or horizontal deflections, and in some instances makes possible an operation, which is practically making a simple

comminuted fracture of the septum, then holding it straight by splints or packing until healing takes place in the new position. Where saw cuts or crucial incisions are used, they need not be so extensive, except where there is dislocation from the maxillary ridge or the deflection is very close to the floor of the nose, when this instrument is useless until the parts are properly weakened.

With the present vogue of the submucous resection the older operations are more or less displaced, but where indicated this simple instrument will be found useful.

Septal Splint. This splint is inserted closed and when in position is opened by pushing home the obturator. It is practically painless to insert and remove, and admits free breathing and drainage. It can be readily made from an old hard rubber thermometer case or fountain pen cap, using an Otis' bulb pointed urethral sound as an obturator. Where hard splints are necessary it can be easily fitted to the individual nose by warming and bending the blades to suit, and will be found comfortable to wear and so easy in use that the patient can take it out to clean, and replace it if desired.

TWO CASES OF TRI-FACIAL NEURALGIA TREATED BY ALCOHOL INJECTIONS.*

R. J. WALKER, M.D.,
Saugatuck.

Butler divides tri-facial neuralgias into two classes. Under the head of Symptomatic Neuralgia he considers that class of neuralgias which occur as symptoms of other diseases, such as dental disorders, exposures, anemia, childbearing, diseases of the eyes or nose, syphilis, gout, rheumatism, diabetes, epilepsy, malaria and trauma.

This form of tri-facial neuralgia is very frequent, and occurs oftenest in the first half of life, and oftenest in females. Our efforts in this class of neuralgia must be directed towards finding and curing the disease which causes the neuralgia. The other form of neuralgia spoken of by Butler is the non-symptomatic, known as Tic Douloureux. I wish to report two cases of tri-facial neuralgia

known as Tic treated by deep alcoholic injections.

The fifth or tri-facial nerve has three branches we must locate in giving alcoholic injections. If the pain corresponds to the distribution of the ophthalmic division of the fifth nerve, we must inject the nerve as it escapes from the brain through the sphenoidal fissure at the back part of the eye; a depth of about $1\frac{1}{2}$ inches from the surface. If the pain follows the distribution of the superior maxillary division we must inject this nerve at the base of the brain as it escapes through the foramen rotundum, which is at a depth of about two inches. If the pain corresponds to the distribution of the third or inferior maxillary division we must direct our needle so as to strike this nerve as it escapes from the sphenoid bone through the foramen ovale

*Read before the Fifth Councillor District Medical Society, January 14, 1909, at Belding.

at a depth of about $1\frac{3}{8}$ inches from the surface. The needle therefore must be sufficiently long to permit the injection to be placed at a depth of from $1\frac{1}{2}$ to 2 inches according to the nerve injected.

Case No. 1. Female, age 70, trouble in the inferior maxillary division. Family history good. Apart from having a rather weak stomach and a very slight tendency to anemia her previous health was good. Had had these attacks of tic for six years; at first only in raw, cold and wintry seasons. She had sought relief in many remedies, had treated with many doctors and had tried various climates. In spite of all her efforts the paroxysms of pain were increasing both in severity and in number. When first attacked she had a tooth drawn, hoping to get benefit in this way. Then began her real battle for relief. Various remedies and various doctors and climates got credit from time to time. Her troubles seemed for the first few years to run a course of from one to four or five weeks at a time and then disappear for a few months. This no doubt accounted for the credit given to various remedies and climates, as well as to various doctors in the early periods of the disease. The seat of her pain was referred, as before stated, to the distribution of the third or inferior maxillary division. For the two years preceding the commencement of her treatment by alcoholic injections her condition was piteous. Any change in temperature such as would be produced by the opening of a door or window in her room would bring on a paroxysm; drinking, eating, talking, frequently had the same effect. She kept her head and face constantly wrapped with shawls. She dreaded to speak, drink, or eat, and was steadily losing vitality because of her long fasting periods. The pangs of hunger and thirst were not to be compared to her paroxysms of pain. These became more and more frequent and for several months previous to the beginning of the alcoholic injections she was never free from pain. She seemed to be nervously and physically a wreck. During the last few months of her disease only two remedies gave even temporary relief. These were heat and static electricity. November 15th, 1908, the alcoholic injections were begun. Twenty-four hours after the first injection was given her pains were greatly reduced. She was hoarse, had difficulty in swallowing and speaking, and seemed flushed, as though she had considerable fever. Her uvula and the soft palate on the side injected were quite

edematous, her throat quite sore, and numbness existed over the region supplied by the inferior maxillary division. Being my first injection I feared almost every complication; and since there was visible swelling of the uvula and soft palate I thought possibly infection had occurred and an abscess was forming. In fact her temperature did rise to 100 but was below normal again in forty-eight hours. One week later her sore throat and other symptoms produced by the injection had disappeared and her pains were only about half as great as they previously had been. Six injections were made for the inferior maxillary division and three for the superior maxillary. They were given at intervals of about one week. All did not have the same effect, but each did some good. Some injections caused the side of the face to swell and one produced considerable ecchymosis along the region of the lower jaw. My first two injections were made with a sharp pointed needle; they were considerably less painful, but after inserting my needle in the second injection blood flowed from it so freely that I must have wounded the small or the middle meningeal artery or one of their divisions. It was after this injection that I got the ecchymotic condition of the skin over the lower jaw; and because of the fear of hemorrhage, my remaining injections were made with a blunt trochared needle. At the completion of these injections there was numbness over the region supplied by this nerve. All pain was gone. Food and sputum tended to accumulate between the cheek and teeth on that side because of partial paralysis of the muscles of mastication. At the present time, more than a year after her last injection, she is free from pain. An occasional slight soreness over the malar bone, temporary in duration, reminds her of the trouble that previously existed. She eats, sleeps, and talks naturally. She enjoys life and her general health has greatly improved. There is still some numbness on that side of the face and because of past memories she cannot be persuaded to throw away the shawl which still covers her head night and day.

Case No. 2. Male, age 73, family history good. Had yellow fever in Cuba years ago, but has ever since enjoyed excellent health till trifacial neuralgia attacked him six years ago. This patient had no tendency to anemia. As with case No. 1 he felt so positive the trouble was in a tooth that a molar was sacrificed. For the first two or three years, as in case No. 1, he had free-

dom from paroxysms for months at a time but his trouble grew gradually worse. During the last year of his disease he obtained considerable temporary relief from whiskey, the only remedy, he claimed, that did any good. He was taking three wine glasses a day with frequently one or more additional doses at night when the deep alcoholic injections were begun. As in the previous case his pains were limited to the inferior maxillary division. After giving him three injections at intervals of three to eight days he wrote me that he had been made much worse instead of better and would take no more. Later he changed his mind and took three injections from another physician; the last injection almost completely relieving the pain and leaving the side of his face numb for weeks. Eight months later his trouble returned and he again began taking whiskey, but in three months the paroxysms were so severe and were controlled so poorly by the whiskey that he came to me again for injections. He had left me before because my injections had hurt him so much; now he returned because the other man's hurt him worse. To enable him to endure these ordeals I now gave him one-half hour before each alcoholic injection $\frac{1}{4}$ grain morphine hypodermically, which acted very nicely indeed. I gave in all six alcoholic injections, before he got complete relief. His face two months after my last injection is not numb and his masticatory muscles are in no manner weakened or paralyzed. He says that occasionally when eating he has a short twinge as of an aching tooth, otherwise his recovery is perfect. Although free from pain now, I believe in a few months this man's trouble will again return.

With patient No. 1, a thin rather anemic woman, there is after thirteen months, no tendency to a return. But the side of her face and her masticatory muscles are yet partly paralyzed.

At the present time people shift about from one doctor to another and from one remedy to another, to such an extent that each of perhaps half a dozen different medical men have statistics claiming the cure of the same patient. I have reported these two cases not because I believed I had obtained any unusual results from this treatment, but because seeing my patients as neighbors almost every day I sincerely believe my cases to be exactly as reported.

Both these patients claimed that these injections were extremely painful, and I

would have had difficulty in persuading patient No. 2 to take his last injections but for the hypodermics of morphine given one-half hour before the alcoholic injections.

To my surprise on two severe cases of sciatic neuralgia on which I tried these same alcoholic injections absolutely no relief was obtained. But for the relief of that form of tri-facial neuralgia known as Tic Douloureux, I believe medical science has in these alcoholic injections a wonderful discovery that is here to stay. I do not believe any treatment will cure all cases, but do believe this will relieve many patients who would otherwise find relief only in death or suicide.

From my very limited experience, I would say especially to those who have never given these injections, to use only a blunt-pointed trocharred needle.

In answer to some questions, Dr. Hugh T. Patrick, of Chicago, writes that up to the present time, Jan. 12th, 1909, he has injected nearly 70 patients. There was paralysis of the external rectus of the eye in three or four cases lasting from a few hours to several days. In one case of paralysis lasting several months, there was also a tendency to erosion and ulceration of the cornea, also lasting several months.

In another case there is at present paralysis of the external rectus with ulceration of the cornea now healing.

In one old man with bad arteries, there is said to have been a sloughing of the soft palate. This sloughing began more than a week after his last injection.

Dr. Patrick says also, "Injections after a recurrence are as successful as the first ones. I think that in the course of time all, or nearly all, will relapse; a successful injection is pretty certain to give relief for more than six months, generally for more than a year, and I believe in some cases for about three years and possibly more."

The Journal of the Michigan State Medical Society

All communications relative to exchanges, books for review, manuscripts, advertising and subscriptions should be addressed to B. R. Schenck, M. D., Editor, 502 Washington Arcade, Detroit, Mich.

The Society does not hold itself responsible for opinions expressed in original papers, discussions or communications.

Subscription Price, \$2.00 per year, in Advance.

MAY

Editorial

Preliminary Announcement of the Next Annual Meeting of the State Society.

The attention of the members of the Michigan State Medical Society is respectfully invited to the Annual Meeting of the Society to be held at Kalamazoo, Wednesday and Thursday, September 15th and 16th, 1909.

Voluntary papers are hereby solicited, and each member who contributes is requested to send the title of his paper to the Secretary of the Section before which he desires to present it. Each paper is limited to fifteen minutes and the title is to be sent as early as possible, not later than June 15th, to the respective Secretary of Section.

DR. G. F. INCH,
Box A, Kalamazoo,
Secretary of Section on General
Medicine.

DR. R. E. BALCH,
115 W. Lovell St., Kalamazoo,
Secretary of Section on Surgery,
Ophthalmology and Otology.

DR. C. G. PARNALL,
Jackson,
Secretary of Section on Obstetrics
and Gynecology.

Papers for publication may be as long

as the members wish to make them, but the fifteen minute rule will be strictly enforced. It is especially desired that papers be illustrated by photographs, drawings, or charts.

It is requested that an abstract of each paper, not to exceed one hundred words, be sent to the Secretary of the respective section by July 15th.

No paper the title of which has not been sent in by June 15th, can be presented unless acceptable to the Secretary of the Section.

Detroit, May 1, 1909.

A. I. LAWBAUGH, *President.*

B. R. SCHENCK, *Secretary.*

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The Cost of Medical Defense as now carried out in a number of medical societies is astonishingly low. The fact that it is inexpensive is proof of its unqualified success, for in no state has it been found that the amount first decided upon is inadequate, none of the leagues has become bankrupt and none has been discontinued. Some of the societies have had the defense feature for a sufficient length of time to prove that it is both efficacious and possible to be conducted at very moderate rates.

The Medical Society of the County of New York first took up the work in 1901 and it was later made a feature of the State Society. At present no extra per capita tax is levied, the funds of the society being used for the expenses of the defense committee.

The Chicago Medical Society began defending its members in 1903. Here one dollar per year is set aside in a special fund, out of the five dollars annual dues. Outside of Cook County, the members of the Illinois State Society pay one dollar in addition to dues of one dollar and a half.

In Pennsylvania, where the state membership is very large, an extra assessment of but ten cents per year is made

and this has been found ample to cover the running expenses.

In Maryland, the plan has been in successful operation for six years and no extra tax is levied beyond the state dues. These must be paid by March 1st in advance. No extra fee is charged in Massachusetts.

Iowa and Missouri each levy an assessment of one dollar per year. In Kentucky the league is separate from the State Society and open only to members of the latter, at five dollars initiation fee and one dollar per year dues.

The plan of our committee, as several times noted in these columns, is to collect one dollar and a half from each member for the first year and one dollar per year thereafter. A feature of our plan, as distinct from many others, is that the defense is retroactive within the statute of limitation. This feature is not thoroughly understood by many. It is best explained by an hypothetical case. Suppose Dr. A. treated a patient during February, 1908, and suit is instituted against him in January, 1910, 23 months after the alleged malpractice. If Dr. A. is in good standing in the society when the defense plan goes into effect, as, if adopted, it will on January 1, 1910, he will be defended for the case which occurred 23 months before. There is no insurance company which has this retroactive feature. Suits which have already been instituted or threatened, when the plan goes into effect, will be taken care of for the defendant, at actual cost.

The question of the adoption of the plan, the full details of which were published in the February issue, will come before the House of Delegates at Kalamazoo, during the annual meeting. Every county society should see to it that the delegates are instructed. In order to get the sentiment of all the members, the Council has ordered a postal card vote to be taken, and this will be done before the Kalamazoo meeting.

Papers for the Kalamazoo Meeting.

In this issue of the Journal will be found the "first call" for papers for the next annual meeting of the Society, to be held in Kalamazoo on Wednesday and Thursday, September 15th and 16th. While an autumnal meeting of the Society is an experiment, it seems to be almost the unanimous opinion that the attendance will be larger in September than in May or June. Certain it is that there will be fewer counter attractions at that time of the year. The meeting place is in the center of a large medical population; it is readily accessible from every portion of the state; its hotel accommodations are good and the hospitality of its physicians well known. Everything points to a very large meeting.

Already the requests for places on the program are numerous, so that the Committee on Scientific Work will have no difficulty in filling the time of the section meetings. It will be a question of how good the papers will be, not how many; a question of quality rather than of quantity.

There isn't one of us expecting to have a paper at Kalamazoo who can fail to profit by some suggestions from Dr. Llewellyn Eliot, a medical writer of large experience, who, under the heading, "Journalistic Suggestions for Medical Men," has given some valuable advice. Some of his points are:

Make the title expressive and not too long. Titles such as "An Interesting Case," or "My Last Year's Experience" mean nothing and when the paper is published cannot be indexed.

For the ordinary fifteen-minute paper an introduction is not necessary. Plunge into the subject and get the attention of the audience at the beginning. If an apology for the paper is necessary, omit the paper entirely.

Omit long case reports. Give the essentials.

Systematize the subject matter, dividing the text into headings. This gives your hearer something to grasp hold of if his mind happens to wander.

Use, if possible, paper the size of the large letter sheet.

Have the manuscript typewritten.

Illustrate your remarks by pictures or charts. They hold the attention of the audience.

Dr. Eliot's concluding paragraph is worth quoting in full: "In conclusion, let me suggest—whatever you have to write, make it short and to the point; cut out what appear to you as beautiful flights of rhetoric; cut out every word that has no place in the paper. Take a little advice which, although written more than thirty years ago, is still good enough to paste on any writer's desk. It is:

"Whatever you have to say, my friend,
Be it witty, grave or gay,
Condense it as much as ever you can,
And say it in the readiest way.
And whether you write of household affairs,
Or particular things in town,
Just take a word of friendly advice—
Boil it down."



The Preparation of Copy for Publication is a duty that falls often to some, and sooner or later to almost every one. The growing tendency to medical organization and the more general habit of writing and reading medical contributions, has brought nearly every ambitious physician into print. No one but an editor, however, realizes the great difference between medical articles as read by the author and as submitted for publication. Errors of construction, spelling, grammar and punctuation are considerably eliminated in the *delivery* of an address, but are impossible of concealment to the next reader. In no way does the preliminary education of a physician declare itself so quickly as in his written page, and in no way does

one estimate this education so quickly as by editing medical contributions.

It is not surprising that schools of the older regime turned out many men incapable of writing good compositions, because the requirements for entrance to medical schools were neglected. It is to be deprecated, however, that any school of today should be lenient with students who can build neither a grammatical sentence, nor spell nor punctuate it correctly, to say nothing of the higher elements of forensic composition. This class of students ought to be either barred from medical schools or sufficiently stimulated to acquire the lacking education. Medical educators are too tolerant of gross mistakes in class quizzes and in written examinations. An illuminating article on the spelling of medical students, by Dr. George Dock, betrays the carelessness in this primary feature of general education.



A medical essay, to be effective, should first be logically planned with regard to the development of the subject matter and the proper sequence of ideas. It is of great advantage to make a skeleton or brief before writing a single sentence. Then the headings and sub-headings should be clearly indicated, and the paragraphing arranged accordingly. Careful use of capitals and punctuation is a necessity, and long involved sentences are to be avoided. If written by hand, the writing should be legible, generously spaced, and done in ink. But in these days of stenographers, every article ought to be sent in typewritten form. Illegible, ill-constructed papers are apt to be postponed in publication in favor of typewritten copy. The writer's name, as he wishes it to appear, ought to be unmistakably indicated, together with an appropriate title, address, and information as to when and where read, if at all.

Suggestions of this kind appear puerile and presumptuous until one is convinced of the prevailing carelessness by actual demonstration. Thoughtlessness is as great a factor as ignorance, doubtless, but it is sometimes difficult to discriminate.

* * *

Atlantic City, June 8th to 11th. The American Medical Association meets on these dates at Atlantic City, the sessions extending from Tuesday morning until Friday afternoon. The trip from Michigan is a delightful one and many are planning to take advantage of the special rates which are offered. As nearly everyone in the state will pass through Detroit the following information is given for reference. It has been obtained from the latest circulars of the Central Passenger Association, and has been verified by the passenger agents of the roads leading out of Detroit. It is, therefore, presumably correct:

Tickets will be on sale from June 3rd to 6th, and the return limit is June 19th. The rate is a fare and one-half for the round trip, being from Detroit and return \$21 by boat to Buffalo, and \$23.65 all rail. The latter tickets are good going or returning on the "D. & B." from Buffalo. Many will enjoy breaking the return trip by taking advantage of this arrangement.

The boat leaves Detroit at 4 p. m. on Sunday. Dinner and breakfast may be obtained on board and connections made Monday morning with the train leaving Buffalo on the Lehigh Valley at 8 a. m. This train arrives in Philadelphia at 7:20 p. m. and carries a parlor car to Philadelphia. It is probable that Atlantic City may be reached that night, although, at this writing, the summer schedule on the Philadelphia & Reading has not been announced. This will make a splendid trip for those wishing to go through the mountains of Penn-

sylvania by daylight. The same Lehigh train may be taken by leaving Detroit on one of the evening trains on the Michigan Central Central (10:45 p. m. and 12:03 a. m.) If the boat is taken on Monday instead of Sunday, the arrival in Buffalo is too late for the 8 a. m. train on the Lehigh, but connections is made with the "Black Diamond Express" at 9:45 a. m., arriving in Philadelphia at 8:20 p. m. This will probably necessitate remaining over night in Philadelphia. The parlor car on the "Black Diamond" runs only to New York and will be available as far as Bethlehem, 56 miles from Philadelphia.

Many, however, will desire to go all the way by rail, thus saving considerable time. The popular train will undoubtedly be the "Wolverine," leaving Detroit at 3:40 p. m. This will connect with the night train on the Lehigh Valley, arriving in Philadelphia at 9:30 a. m. Dinner and breakfast may be had on the train or breakfast at the Reading terminal in Philadelphia. The subway in Philadelphia has been completed, making the trip across the city to the Chestnut Street Ferry an easy and rapid one. Atlantic City will be reached about noon. *Extra through sleepers will be run on the "Wolverine" Sunday.* Berths may be reserved by writing to Mr. Jos. S. Hall, Michigan Central Station, Detroit.

Stop-overs on all tickets may be arranged in Buffalo, Ithaca and Philadelphia.

One may also reach Philadelphia via Toledo and Pittsburg. The trip requires a change of cars at both cities.

* * *

The family of Major James Carroll, who rendered memorable service in the investigation of yellow fever and died from the result of this work, are in reduced circumstances; the Legislative Council of the American Medical Association has

appointed a committee to solicit contributions to the *Carroll fund* and it is earnestly requested that physicians give to such a worthy cause, no matter how small the donation may be. Make checks, drafts, etc., payable to Major M. W. Ireland and send to him at the office of the Surgeon-General, War Department, Washington, D. C. Acknowledgment will be made in the pages of the *Journal of the American Medical Association*.



Numerous responses to this appeal are coming in, both from individuals and from medical societies. It seems as if a most fitting and comprehensive method of solicitation is for the subject to be brought before the county medical societies, and collections made on the spot. Dollar subscriptions gathered in this way help greatly to swell the total of such a worthy fund, and make no severe tax upon any one. It is reported that some six or seven thousand dollars are needed to raise a mortgage. If it should prove difficult to obtain this sum, what a pitiful commentary it would be upon the relative appeal of prosperity and indigence. The well known New York surgeon, Dr. Andrew McCosh, who died recently, was financially successful; his New York colleagues, to express their esteem for him, have raised tens of thousands of dollars for a memorial. A similar movement is on foot in memory of Dr. William Bull, recently deceased. These men left their families in comfort, but expensive monuments are easily raised to their fame. Dr. James Carroll, a humble martyr, but illustrious in the annals of medical discovery, left a large family in straitened circumstances, deserving of rich assistance, and it is proving slow work to obtain help, even with a country-wide appeal.

Book Notices

Diseases and Surgery of the Genito-Urinary System. By Francis S. Watson, M. D., Senior Visiting Surgeon to the Boston City Hospital, Lecturer on Genito-Urinary Surgery in the Harvard Medical School, Boston, and John H. Cunningham, Jr., M. D., Assistant Visiting Surgeon to the Boston City Hospital, Member of the American Association of Genito-Urinary Surgeons. In two very handsome octavo volumes containing 1101 pages, with 454 engravings and 47 full-page colored plates, mostly from original drawings. Price for the complete work: Extra cloth, \$12.00, net; Half Persian Morocco, gilt tops, de luxe, \$17.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

This work on genito-urinary surgery surpasses anything heretofore published, both in completeness and in general makeup. The two volumes are beautifully illustrated and the press work and binding are unexcelled. It is a *de luxe* edition.

Volume I, consisting of 627 pages, treats of the external genitals, bladder and prostate, while the second volume, somewhat smaller, contains matter relating to the kidneys and ureters. The general plan of the work is to describe the anatomy and various lesions of the different organs, reserving for separate chapters, the technic of the various operations. The author is liberal in his credit to other workers, but does not leave the reader in doubt as to his own preferences and methods. Among the many excellent chapters may be mentioned the very practical one on the treatment of urethritis, and the splendid differentiation of chancre and chancroid, splendidly illustrated by colored plates. The author advocates internal or combined urethrotomy for stricture, and favors perineal prostatectomy for hypertrophy. The section on the prostate is perhaps the best in the work. Cystoscopy is too meagerly discussed for a work of this importance.

The chapter on movable kidney is a sane exposition of the subject. Tumors of the kidney are exhaustively described. More space should have been given to the surgery of the ureter. Tuberculosis of all the organs is considered in one chapter.

The illustrations are excellent. Some might have been omitted, indeed 68 of them ought to have been, for it is today not necessary to show the reader a picture of a knife, scissors, dissecting forceps, sound, operating table, etc. Figure 110 is twice repeated. Most of the anatomical drawings are from Sobotta.

Taken as a whole, the work is to be highly recommended.

Medical Inspection of Schools. By Luther Halsey Gulick, M.D., Director of Physical Training New York Public Schools, and Leonard P. Ayres, General Superintendent of Schools of Porto Rico, 1906-1908. 6x9½ inches; pp. 276; cloth. Postpaid, \$1.00. Charities Publication Committee, 105 East 2nd St., New York City.

This is the second volume published by the United Charities of New York and is made possible by the endowment of the Russell Sage Foundation. The first was a general directory of tuberculosis work and was recently reviewed in these columns.

This book contains a very large amount of information on the subject of medical inspection of schools. The movement for such inspection has progressed very rapidly and has become world wide, yet sources of definite information concerning it have, until the present work, been few and scattered. Few realize that it has become a national institution in England, France, Belgium, Sweden, Switzerland, Japan, Argentine Republic, and practically so in Germany. Massachusetts has a compulsory medical inspection law, New Jersey a permissive one, Vermont a law requiring the annual testing of the vision and hearing of all school children, and Connecticut one providing such tests triennially.

The historical, medical, educational, administrative and legal phases of the work are all elaborately set forth. There is added the most extensive bibliography on the subject yet compiled. Educators, physicians, social workers, and all who are concerned for the welfare of children will find in it much of value and interest.

Epoch-Making Contributions to Medicine, Surgery, and the Allied Sciences; being reprints of those communications which first conveyed Epoch-Making observations to the scientific world, together with biographical sketches of the observers. Collected by C. M. B. Camac, M.D., of New York City. Octavo of 435 pages, with portraits. W. B. Saunders Company, 1909. Artistically bound, \$4.00 net.

The compiler of this work, who is one of the most scholarly of the younger teachers in medicine, has been in the habit of presenting to his students certain masterpieces of scientific research which time has proven to be classical. The object he had in view in preparing this book is to place these masterpieces within ready reach of the teacher and student.

The masterpieces selected are: Lister's "On the Antiseptic Principle and the Practice of Surgery"; Harvey's "An Anatomical Disquisition on the Motion of the Heart and Blood in Animals";

"Auenbrugger's "On Percussion of the Chest"; Laennec's "A Treatise on the Diseases of the Chest and on Mediate Auscultation"; three articles by Jenner on "Variolae Vaccinae"; four articles on anesthesia by Morton, Warren and Simpson; and "The Contagiousness of Puerperal Fever" by Holmes.

These seven sections include, besides the text of the original paper, a biography of the master, a list of his writings, explanatory notes, autograph letters, etc. Excellent portraits are also inserted. The general makeup of the book is most attractive.

The idea is a happy one and the profession is indebted to the compiler and publishers for carrying it out so well.

ALUMNI CLINIC WEEK. Detroit College of Medicine.

The annual clinic week of the Detroit College Alumni will begin on Wednesday, May 19th, and will continue until Thursday, May 27th. Clinics and lectures will be given daily, by members of the faculty, beginning at 9 a. m. and ending at 6 p. m.

The following distinguished men will be present:

May 19th, Dr. Lewis McMurty, Louisville, gynecological clinic at Harper.

May 20th, Dr. R. C. Cabot, Boston, clinic on the heart, at Harper.

May 21st, Dr. Bransford Lewis, St. Louis, cystoscopy and ureteral catheterization, at St. Mary's.

May 22nd, Dr. B. C. Hirst, Philadelphia, obstetrical clinic at St. Mary's.

May 24th, Dr. Geo. W. McCaskey, Fort Wayne, psycho-therapeutic clinic at St. Mary's.

May 25th, Dr. Alexander McPhedran, Toronto, clinic on Hodgkin's Disease and neurology at Harper.

May 26th, Dr. Christopher Graham, Rochester, Minn., clinic on diseases of the biliary tract and pancreas at St. Mary's.

May 27th, Dr. John Y. Brown, St. Louis, clinic on herniotomy and salpingectomy at Harper.

On Friday, May 21st, a special car on the Interurban will carry the guests to the Wayne County Asylum, where a clinic on the relation of the thyroid to mental conditions will be given by Drs. Marker, Inglis and Ives, to be followed by

a complimentary luncheon. At 2 p. m. Tuesday, May 25th, a special demonstration on the recent advances in laboratory and research methods will be given by the Staff of the Biological Laboratory of Parke, Davis & Company, to be followed by a boat ride and dinner at the Star Island House, the alumni being the guests of Dr. S. G. Miner. Class reunions of 1869, '74, '79, '84, '89, '94, '99 and 1904 will take place on Wednesday evening, May 26th. The alumni luncheon will be served at Harmonie Hall at 1:30 on Thursday, May 27th, followed by the annual meeting. In the evening the commencement exercises of the class of 1909 will take place at the Light Guard Armory and the annual banquet at the Cadillac. At the meeting of the Wayne County Medical Society on Monday evening, May 24th, Dr. George W. McCaskey, of Fort Wayne, will read a paper on Intestinal Tuberculosis. A smoker will be held Saturday evening, May 22nd, at Harmonie Hall.

It is difficult to conceive of a week's program more replete with enjoyable and highly instructive events than the one planned for this year, and the committee having it in charge should be rewarded by the largest registration in the history of alumni week celebrations.

County Society News

First District.

The fifth annual meeting of the First Councilor District was held at the Hotel Tuller, Detroit, Thursday, April 22nd. In the afternoon the scientific program was carried out, with Dr. W. P. Manton, President of the Wayne County Medical Society, in the chair.

Dr. C. D. Camp, of Ann Arbor, read a paper on the "Causes and Treatment of Trifacial Neuralgia"; Dr. R. B. Canfield, of Ann Arbor, one on "Chronic Suppuration of the Nasal Accessory Sinuses"; and Dr. Don M. Campbell one on "The Removal of Foreign Bodies From the Eye." The subject of Dr. Frank B. Walker's paper was "Gunshot Wounds in Civil Practice." Dr. H. W. Yates made "A Plea for Early, Frequent and Thorough Examinations of Pregnant Women," and Dr. James E. Davis discussed "Nutrition in Critical Physiological Periods." Papers by Dr.

I. L. Polozker on "Fevers in Infancy and Childhood," and by Dr. A. P. Biddle on "Parasyphilis: Prophylaxis: Its Amelioration," completed the program.

At 6:30 a very enjoyable dinner was served, at which 53 sat down. Dr. L. J. Hirschman, Councilor of the First District, acting as toastmaster, introduced Dr. W. P. Manton, who extended a welcome on behalf of the Wayne County Society. "A Boy from the Woods" was the title of a toast by Dr. L. G. North, of Tecumseh. "The Physician as a Business Man" was discussed in a very practical manner by Dr. David Inglis. Dr. William F. Breakey spoke on "Medical Pendulums" and Dr. Leartus Connor on "The Physician and His Social Life."

Second District.

The Second Councilor District, comprising Hillsdale, Ingham and Jackson Counties, held its annual meeting in the council rooms of the City Hall in Lansing on the afternoon of April 22nd. The district officers having the meeting in charge were: President, N. H. Williams, Jackson; vice-president, B. F. Green, Hillsdale; secretary, Samuel Osborn, Lansing. The local committee on arrangements comprised C. H. Brucker, L. W. Toles and S. Osborn.

The program arranged was:—

- I. Business Meeting and Election of Officers.
- II. Address of President, Dr. N. H. Williams, Jackson.
- III. Remarks by District Councilor, Dr. A. E. Bulson, Jackson.
- IV. Paper—The Bacteriology of Diphtheria, Dr. M. L. Holm, State Bacteriologist, Lansing.
- V. Paper—Recent Experiences in the Diagnosis of Retroperitoneal Tumors, Prof. Albion W. Hewlett, Ann Arbor.
- VI. Paper—The Pure Food Movement and the Progress of Food Chemistry, Mr. Floyd Robinson, State Analyst Dairy and Food Department, Lansing.
- VII. Paper—Oesophageal Stricture, Dr. W. H. Enders, Jackson.

A dinner was tendered the visiting physicians by the members resident in Lansing, at the Hotel Downey, after the meeting. The attendance at the meeting was 35.

The newly-elected officers are: President, J. F. Campbell, Lansing; vice-president, C. H. Lewis,

Jackson; secretary, Samuel Osborn, Lansing.

The occasion was thoroughly enjoyed by all who were present.

SAMUEL OSBORN, *Secretary*.

Ingham.

The Physicians' Clinical Club has completed its work for the year. The meeting on April 6th was a gathering of the physicians and druggists, and one of the leading pharmacists, Frank L. Gardner, read a paper on the "Relations of Druggist and Physician." This was followed by a free discussion and all agreed that the meeting was a successful and valuable one. It was the opinion of all that a similar meeting should be planned for the near future.

SAMUEL OSBORN, *Secretary*.

Ionia.

Owing to bad weather and much business, the attendance at the April meeting of the Ionia County Medical Society was not up to the average.

Dr. Pinkham being unavoidably absent, the time of the society was taken up with the reading of the second number on the program. This proved to be so interesting that the wish, that this paper might be preserved until there was a full attendance, was expressed by all present.

Under the head of new business it was resolved that inasmuch as Local Option had prevailed in the county, the physicians of the County Medical Society would not write prescriptions for liquors as a beverage.

On Tuesday evening, April 13th, a special meeting of the society was called to meet at the office of the president, Dr. E. F. Beckwith, at which the following resolutions were unanimously carried:—

Be it resolved, That the Ionia County Medical Society disapproves of the action of the Michigan House of Representatives in passing the Optometry or Giles Bill, and that we urge our Senator, the Honorable Wm. Bradley, to use all honorable means to prevent its further passage, as we consider it inimical to the best interests of the people of the state.

C. S. COPE, *Secretary*.

Kalamazoo Academy.

The regular monthly meeting of the Academy

was held April 14th, and the following program given:—"Diagnosis and Treatment of Stomach Diseases from a Surgical and Medical Aspect," Dr. G. W. McCaskey and Dr. M. F. Porter, both of Fort Wayne, Ind. "X-Ray Evidence in Gastric Ulcer," Dr. A. W. Crane, Kalamazoo. Dr. Thaddeus H. Ames, Dr. E. D. Brooks and Dr. Ward E. Collins, all of Kalamazoo, were elected to membership.

G. F. INCH, *Secretary*.

Kent.

Dr. Frederick W. Robbins, of Detroit, appeared before the society at its regular meeting on March 24th and read an extremely interesting paper entitled "The Prognosis and Treatment of Certain Prostatic Diseases." Dr. Robbins was the guest of honor at a dinner given to twelve local physicians at the Pantlind Hotel before the meeting. Dr. W. T. Dodge, of Big Rapids, who was on his way to Chicago, was also a guest at the dinner and also attended the meeting.

On April 14th, Dr. C. G. Darling, of Ann Arbor was the invited essayist of the evening and read a paper on "Suppurative Parotitis as a Complication in Surgery." At the close of this meeting the members adjourned to the Pantlind Hotel and enjoyed an informal smoker. The menu was rendered more enjoyable by impromptu speeches, stories and reminiscences. Our Social Committee has promised a similar entertainment in the near future.

The pure milk contest will be held in this city on May 14th, under the auspices of the Pure Milk Commission of this society and the Public Health Committee of the local Board of Trade.

F. C. WARNSHUIS, *Secretary*.

Saginaw.

The officers of the Saginaw County Medical Society for the coming year are F. W. Edelmann, president, and J. Neil MacLean, secretary-treasurer.

J. N. MACLEAN, *Secretary*.

Tuscola.

The last meeting of the Tuscola County Medical Society was held at Hotel Montague, Caro, and was well attended. Drs. Peterson from Ann

Arbor and MacMillan from Detroit gave interesting papers. The next meeting is to be held at Cass City the second Monday in June, and a "regular revival" is being planned.

M. M. WICKWARE, *Secretary*.

News

The Saginaw General Hospital has received a bequest of \$25,000.00 by the will of the late Charles A. Rust.

A hospital has been opened at Three Rivers in the Sage Building, by Dr. Guy L. Bliss.

A new hospital is to be erected by Dr. E. I. Lindgren in Marquette, accommodating 25 to 30 patients.

The publication of the *Archives of Otolaryngology* ceased with the issue of December, 1908, completing the 37th volume.

The Delta County Antituberculosis Society was recently organized at Escanaba, with Dr. J. Charles Girard as president and Dr. Oscar C. Breitenbach as secretary.

Dr. David J. Levy, secretary of the Kalamazoo Board of Health, has resigned.

Dr. J. B. Kennedy, Detroit, has returned from a trip to Mexico and the southwest.

An effort will be made to conduct a vigorous spring campaign against tuberculosis in Detroit, and an organization committee meeting was held for that purpose was held in the Hotel Pontchartrain recently. The following educational committees were appointed: Schools and playgrounds, Mrs. Guy L. Kiefer, Mrs. H. E. Safford, Mrs. H. H. Kenny, Mrs. C. C. Morrison, Mrs. Willard E. Warner; factories, Mrs. Antonio Pesano, Mrs. George Kerwin, Mrs. H. B. Lewis; dispensary, Mrs. W. R. Chittick, Mrs. Emma Edwards; public meetings, Mrs. Lee S. McColester, Dr. Mary Thompson Stevens; publicity, Mrs. E. D. Stair, Mrs. Sara Moore, Miss Gahagan, F. S. Cooke, Louis Ling.

The Harvard Summer School has secured reduced fares for students coming from a distance over the Eastern Canadian, the New England, and the Trunk Line Passenger Association's routes. A fare and three-fifths is obtainable, on

the certificate plan, provided one complies with certain stipulated conditions. These rates apply also to students desiring to take medical courses.

It is reported that President Taft has requested Surgeon-General Wyman to draw up a scheme for the consolidation under one bureau of all the agencies exercised by the Federal Government for the Preservation of the Public Health. The President is much interested in this question and will probably make some recommendation in his next message to Congress.

The Chicago Board of Education has decided to name the new high school on the north side the Nicholas Senn High School.

The Medical College of Ohio and the Miami Medical College, both of Cincinnati, are to be merged.

Major James Evelyn Pilcher, U. S. A., has retired from the editorship of the *Military Surgeon*. Major Pilcher has held the position for many years, but is now obliged to resign on account of ill health. He will be succeeded by Major Charles Lynch.

The following delegates from the Wayne County Medical Society to the State Society were elected in January:—

Regular.	Alternate.
V. C. Vaughan, Jr.	G. W. McKean
A. D. Holmes	P. J. Livingstone
B. R. Shurly	R. E. Mercer
F. W. Robbins	M. V. Meddaugh
A. P. Biddle	F. B. Walker
C. W. Hitchcock	L. Connor
W. Warren	R. Hislop
F. B. Tibbals	F. D. Summers

Dr. G. W. Lowry, Hastings, has recovered from a serious attack of septicemia, due to an operation wound.

Dr. N. F. McClinton was recently elected mayor of Alma on the Democratic ticket.

The perjury case against Dr. George A. Fritch, recently started in connection with a death certificate for a fraternal order, has been dismissed for lack of evidence.

Miss Christina G. Macomb, great-grandniece of Gen. Alexander Macomb, and formerly matron of St. Luke's Hospital, Detroit, died April 4, after a long illness.

Dr. A. Adlington Newman, Detroit, has returned from a trip to Jamaica.

Dr. Wilfred T. Grenfell, medical missionary in Labrador, recently gave addresses in Detroit.

The Pennsylvania Avenue Sanitorium in Detroit has been leased by Dr. H. A. Luce and will be conducted on modern lines for the benefit of the profession.

The State Health Department at Lansing will provide pamphlets of instruction on tuberculosis, diphtheria, and typhoid fever, written in German, Swedish, and Polish. It is hoped that these will receive a wide distribution and of course the medical profession must be the intermediate agents. The pamphlets will be sent to any address by Dr. F. N. Shumway, secretary of the State Board of Health.

Drs. Davis, Yates, Polozker, Mercer, Beattie, and Ives, of Detroit, have taken new offices in the Gas Office Building, which is proving an attractive location for physicians.

An examination by the State Board of Medical Registration will be held at Harmonie Hall, Detroit, May 24, 25 and 26. Application must be made at least a week in advance. For the first time candidates will be required to answer questions upon and take a practical examination in refraction.

Mrs. Caroline Bartlett Crane, of Kalamazoo, will lecture in twelve different cities in Kentucky during May under the auspices of the State Board of Health.

Largely through the efforts of Dr. C. D. Morris, medical inspection of the school children of Pontiac has been ordered by the School Board. Detroit, Grand Rapids, Lansing and Ann Arbor are the other cities of the state having school inspection.

The commencement exercises of the Farrand Training School for Nurses, Harper Hospital, were held at the First Presbyterian Church, Detroit, Tuesday evening, April 27, 1909.

At the coming meeting of the American Medical Editors' Association to be held in Atlantic City, June 5th to 7th, the 40th anniversary of the association will be celebrated. It is expected that delegates from the foreign medical press will be present and a program of unusual interest has been prepared.

There is a movement on foot to provide a

pension from the funds of the American Medical Association, to aid Dr. W. B. Atkinson, a former secretary, who is living at an advanced age in comparative poverty.

Dr. V. W. Shirley, a member of the state society and last year president of the Presque Isle County Medical Society, was elected mayor of the City of Onoway, at the recent election.

Dr. J. M. Sattler, of Manistique, left recently for Denver, Col., to spend a few months on his farm and fruit ranch at University Park.

Dr. G. M. Livingston, of Manistique, has been appointed examining surgeon on the Pension Board of Schoolcraft County, to succeed the late Dr. Omer C. Bowen.

Dr. John R. Foote, formerly of Novesta, has located in Thompson.

At the meeting of the Senn Club, held in Chicago March 26th, it was decided to perpetuate the memory of Nicholas Senn and to bring before the public, lay and professional, the valuable services rendered by Dr. Senn. The means to be employed for this purpose will be decided on later. Dr. Alex. Hugh Ferguson was unanimously elected president of the club, and Dr. Arthur MacNeal was re-elected secretary.

Dr. Joseph Sill has been appointed pathologist and Dr. C. S. Oakman anesthetist to Harper Hospital, Detroit.

On Wednesday evening, March 31, the Ann Arbor Medical Club and the Washtenaw County Medical Society tendered a banquet at the Michigan Union Club House in Ann Arbor to William Fleming Breakey, in honor of his fiftieth year in the practice of medicine. Dr. Breakey is now clinical professor of dermatology and syphilology in the University Medical Department. Dr. V. C. Vaughan acted as toastmaster and the following toasts were arranged:—"Teacher," James B. Angell; "Friend," Theodore McGraw; "Classmate," James C. Willson; "Dermatologist," M. L. Heidingsfeld; "Executive," Junius E. Beal; "Soldier," Henry S. Dean; "1859-1909," William F. Breakey. About 75 were in attendance.

Marriages

Harry Hugh Ellis, M. D., Charlotte, to Miss Marie Rowland Van Vert, Detroit, March 18.

William G. Hastie, M. D., to Mrs. Sadie A. Stewart, both of Detroit, November 31, 1908.

Deaths

Dr. J. M. Rankin, of Kalamazoo, for many years a member of the Kalamazoo Academy of Medicine and of the State Society, died at his home, March 28th, aged 76 years.

Dr. C. W. Huff, of Goblesville, died at his home on March 31st. Dr. Huff was born in Luzerne county, Pennsylvania, attended the state normal school at Bloomsburg, Pa., a business college at Kingston, Pa., taught school for five years, attended the University of Pennsylvania at Philadelphia, graduating in 1874. He immediately began the practice of medicine. In 1879 he moved to Kendall, Mich., and in 1890 to Goblesville. Dr. Huff was a member of the Kalamazoo Academy of Medicine and had been one of the United States pension examining surgeons for that district ten years. He was also president of the Board of Trustees of Goblesville for many years.

Dr. William Hyser, formerly a member of the Kent County Medical Society, died at his home on March 20th, at the age of 83 years. Dr. Hyser was born September 11, 1826, in Herkimer county, New York; graduated at the University of Buffalo in 1850, and located at once in Kent county, Michigan. He served as surgeon in Company F, 5th Michigan Cavalry during the Civil War and was discharged in July, 1863, after which he again resumed practice in Kent county.

J. Walton Pennock, M. D., died at his home in Gladstone, March 12, from paralysis, aged 69.

John Patterson Wilson, M. D., health officer of Pontiac and a member of the school board for fifteen years, died at his home in Pontiac March 26, aged 80.

Alonzo Bryan, M. D., of Detroit, died recently from gangrene and paralysis, at his home, aged 69.

Willard Southard Whitney, M. D., a pioneer practitioner of Big Rapids, died in Pontiac, from senile debility, April 2, aged 90.

Albert E. Luton, M. D., a well-known physician of Grand Rapids, died at his home recently, after an illness of two months, aged 57.

Dr. Bradley Crippen, of Coldwater, died at his home March 17, aged 48.

ERYSIPELAS.

Judd describes the local use of carbolic acid and alcohol in erysipelas and refers to the multiplicity of remedies advised. About eight years ago he began to treat all cases of erysipelas by the method to be described. Since then he has seldom failed to secure a satisfactory result and has discarded all other remedies in these cases. He has treated 82 patients with five failures, 10 delayed recoveries and 67 complete remissions of symptoms in from 12 hours to four days. These cases have included not only the beginning stages of facial and other forms of erysipelas, but those in the advanced stages in which the area involved has varied from the face only, to the face and scalp and with marked general septic symptoms. Almost the first result noticed by the patient is a complete cessation of the unendurable itching, burning and throbbing. Usually within a few hours, nausea subsides, the temperature sinks to normal, the appetite returns, the pulse very rapidly falls. The technic consists of swabbing with 95% carbolic solution the entire surface of the involved area and about a half inch of the surrounding apparently healthy skin. This is left until the purplish color of the inflamed area is replaced by a pretty complete whitening of the skin. It is essential to the success of the procedure that we await this whitening before proceeding to the next step in the operation. On the other hand, if we allow the whitening to proceed to a thorough blanching we shall produce a burn and a slough of the skin, which will prove painful to our patient and add nothing to the efficiency of the treatment. When large areas are involved it is advisable that only a portion be painted at a time. The second step consists in going over the whitened area very thoroughly with a swab saturated with pure alcohol. If this is done thoroughly the whitened area becomes once more pink and the alcohol must be applied until this is accomplished. After this we proceed with other areas, first using the carbolic and then neutralizing with alcohol until our operation is complete. It is essential that we should include a half inch of the apparently sound skin as the bacteria of erysipelas are found beyond the apparently involved area. If the treatment is properly carried out no scarring results.—*Medical Record*, Feb'y 3, 1909.

Progress of Medical Science

SURGERY.

Conducted by

C. S. OAKMAN, M. D.

The Rational Treatment of Non-Malignant and Border-Line Tumors of the Breast.

GIBSON thinks that many physicians are attracted too strongly by non-surgical cures for cancer, especially in these days of trypsin, serum-therapy, etc. No means has as yet been discovered equal to early operative removal, and this should remain the prime resource until a better one is found and proved. Neoplasms of the breast should be regarded as malignant till proven otherwise. Over eighty per cent of breast tumors are cancer, and a large proportion of the remainder are sarcoma, or "pre-malignant" conditions. In short, there is about one chance in ten that a mammary neoplasm is benign. We are not interested in the *obvious* cases of cancer, because when the diagnosis is positive, the patient is too apt to be already doomed. It is the doubtful cases that ought to be our chief concern, for those that pass as mastitis, adenoma, and cysts, without operative intervention, are the ones that will later turn out to have been, in a certain per cent, carcinomatous, or will develop malignancy in time. No one is qualified to pronounce any breast tumor absolutely benign, and even the discovery of fluid with the aspirating needle gives a false sense of security.

In brief, then, any breast tumor may be cancerous or may become so, and it is wrong to assure any patient that such a growth is safe to leave alone. The full duty of the surgeon is, *first*, to know what are borderline cases, *second*, to know how to make a diagnosis, and *third*, to know the appropriate advice. The border-line cases are in women of thirty; under thirty, a tumor is presumably innocent, if there is no glandular involvement and no history of rapid growth. In cases over thirty, a definite diagnosis must be made.

The diagnosis can be made with certainty only by removal of a sufficient portion for microscopical examination. The determination of what amount is *sufficient* is subject to error, as many cases have occurred where small pieces removed

showed no malignancy, although it existed elsewhere in the growth. Therefore, the author urgently recommends that every case of breast tumor in an individual over thirty be subjected to "*plastic resection*," as done by Dr. J. Collins Warren. According to this method a considerable growth can be removed with very little resultant deformity and an almost invisible scar. The chief factors in the cosmetic success of the operation are in making a semi-circular incision corresponding to the lower border of the breast, and in reconstructing the tissues that are left after resection by appropriate buried sutures. By such methods, uniformly practiced, one can be quite sure of the microscopical diagnosis; if the growth is benign, the feeling of security is absolute; if it is malignant, extensive and radical operation can be done at once. It is the surest means yet known towards the prophylaxis of cancer.—*Annals of Surgery*, April, 1909.

The Value of Enterostomy in Intestinal

Obstruction. LORD quotes statistics of operative mortality in intestinal obstruction, showing that cases average considerably less than 50 per cent of recoveries. It is a fact that the majority of these cases are seen so late that prolonged or extensive surgical intervention is very dangerous. The anesthetic itself contributes much to shock when the emunctories are so inhibited. Therefore the indications are to relieve the obstruction in the best and shortest way possible, without attempting resection, anastomosis, or plastic work. The author believes that enterostomy is the operation of choice, according to the method of E. J. Senn or Kader. It reduces the great dangers that existed in older methods of enterostomy, such as peritoneal soiling, skin excoriation, inanition, and secondary operation for closure. It is possible and usually advisable to do the operation under local anesthesia.—*Surgery, Gynecology and Obstetrics*, April, 1909.

PATHOLOGY AND BACTERIOLOGY.

Conducted by

C. E. SIMPSON, M. D.

The Value of the Leucocyte and Differential Counts in Appendicitis.—PEASE tabulates the blood findings in 300 cases of appendicitis. Although it is impossible to decide from the blood count alone what pathological condition is present or even whether the case is severe or not, the writer believes the blood findings afford very valuable evidence, which must of course be interpreted in connection with the other data.

The cases reported are classified as chronic, simple acute, acute gangrenous, appendicitis with abscess formation, appendicitis with local peritonitis, appendicitis with general peritonitis. In the majority of instances the more severe the pathological lesion the higher the percentage of polynuclear cells. There are, however, important exceptions to this rule, as in some cases of general peritonitis where the absolute and differential counts were both low, probably on account of the sudden overwhelming of the resisting powers by a particularly virulent infection. PEASE believes that in the majority of cases a leucocyte count of over 15,000 denotes a severe case and under 15,000 a mild one, but this is not to be taken as an absolute rule. We can, however, judge more accurately of the pathological condition from the polynuclear count than from the total leucocyte count.

The average counts in the cases reported are as follows:

Variety.	Per cent. Polynuclears.	Number of Leucocytes.
Chronic	69%	12,900
Simple acute	77%	14,700
Gangrenous	85%	19,400
With abscess	88%	22,200
With local or spreading peritonitis	88%	21,100
With general peritonitis..	89%	21,800

It is to be noted that practically two-thirds of all the more severe cases show a polynuclear count of over 85 per cent. Cases with over 90 per cent are cases with a more or less extensive peritonitis. From the blood counts then we might conclude—

1. A polynuclear count between 85 and 90 per cent. indicates the presence of a severe process.

2. Above 90 per cent a dangerous condition, probably complicated by peritonitis.

3. Below 80 per cent safety for the time being.

4. Between 80 and 85 per cent, doubt.

5. These rules hold good for about four-fifths of this series of cases, there being many exceptions to each rule. As previously stated, the writer believes that a more reliable opinion of the pathological condition is to be obtained from the differential leucocyte count than from the absolute count. This is also more reliable than the method suggested by some writers, the relation between the total increase of leucocytes and the polynuclear increase.—*Annals of Surgery*, xlix, 385.

The Presence of Tubercle Bacilli in the Circulating Blood in Tuberculosis.—From previous studies of feces and the contents of thoracic ducts ROSENBERGER obtained the idea that all forms of tuberculosis are characterized by a bacteriemia. Accordingly, following the technic here described, he examined the blood of 125 cases. By means of a sterile syringe about 5 cc. of blood are withdrawn from a vein of the patient's arm and immediately placed in an equal quantity of a 2 per cent solution of sodium citrate in normal salt solution. Shake and set in a refrigerator for 24 hours. At the end of this time there is an abundant sediment. This is removed by a pipette, placed on a slide, dried by heat and placed in distilled water until complete laking of blood results. The slide is then fixed and stained in the usual manner for tubercle bacilli.

Cases of acute miliary tuberculosis, fibroid tuberculosis, pneumothorax, incipient, advanced and laryngeal tuberculosis were examined, all showing tubercle bacilli, usually in large numbers. ROSENBERGER concludes that tuberculosis in all its forms is a bacteriemia and holds that the examination of the blood in the manner described may show the presence of the bacilli before the disease is otherwise demonstrable.—*American Journal of Medical Sciences*, cxxxvii, 267.

Commenting on the above editorially, the *Medical Record* suggests the possibility of Dr. Rosenberger's having mistaken artefacts and shadows of red blood cells for tubercle bacilli. His procedures have been tried by two large hospitals in New York with uniformly unsuccessful results. The question raised is an interesting one, but further work is necessary before positive statements are warranted.

NEUROLOGY.

Conducted by

C. W. HITCHCOCK, M. D.

Insomnia: Its Pathogenesis and Treatment.

—Sleep is a nervous phenomenon. Various views have been expressed as to whether it has an anatomical basis. The majority have favored the view that during sleep the brain is in a state of anemia. Although a histological difference in the appearance of the fatigued and the rested nerve cell has been demonstrated, the cause of sleep does not yet rest upon definite anatomic basis. Theories of a chemical basis, a toxic cause, and that of a sleep center, as also that sleep is a reflex act, an instinct,—all are equally lacking in positive confirmation. Sleep may be normal or pathological. Disturbances of sleep are the pathological conditions most commonly confronted.

Insomnia, whether it be total or partial, in view of the little understood cause of normal sleep, must be equally vague as to its pathology. Emotional disturbances, intense mental concentration, atmospheric conditions are known to have some causal relations, while the idiosyncasy of the personal equation can never be wholly eliminated. Injuries and other painful conditions, malnutrition from whatever cause, gastric conditions, cardiac disturbances, renal affections, various disordered states of the blood, arthritis, gout, diabetes, are all possible factors in disturbed sleep.

Insomnia is probably most frequently associated with nervous diseases. Cerebral tumors, syphilis, meningitis, hemorrhage, softening, and arterio-sclerosis of the brain may any of them contribute to derange sleep. Here, the disorganized sleep may be due to disturbed circulatory conditions, and the sensitive meninges (supplied by sensory filaments from the fifth nerve) are naturally distended in conditions of meningitis.

Cord diseases which affect sleep are commonly those invading the upper part of the cerebro-spinal axis. Functional diseases afford the most numerous cases of sleeplessness—hysteria, neurasthenia, hypochondria,—and here it is not infrequently the chief complaint and these patients often establish a self-made diagnosis of the most serious organic conditions. Mosso and Fere have pointed out that in normal individuals fatigue increases emotionality, which would still more obtain in the neurasthenic.

In the insanities absence of sleep is most common. Toxic conditions produce delirium tremens, delirium grave, or mania with its exalted emotional state; dementia precox, with its hallucinatory condition, senile dementia, with its diseased arteries and deteriorated cerebration, all afford frequent examples of sleep, pathologically absent, due largely to varying conditions of circulation and blood-pressure.

Before recourse to drugs, other means must first be tried. Heavy meals at night are inadvisable for the patient of disturbed sleep. Milk and eggs in small quantities are better than a heavier meal. A very small amount of meat at the mid-day meal is also advised. Small meals, avoiding large amounts of waste matter, are to be insisted upon. Sweets and stimulants are to be avoided, tobacco reduced to a minimum, or even abandoned. Constipation is to be remedied.

Hydrotherapy is a helpful adjunct. A luke-warm bath before retiring, a half-minute shower-bath, warm or cold, a one-minute tepid pack, are means sometimes efficient in producing sleep. A cold wet towel placed on the neck in bed, or the feet and ankles kept for fifteen minutes in hot water are means not to be neglected.

Very difficult of treatment are the causes due to sorrow or mental preoccupation. Psychic measures may avail to some extent. Here sodium or strontium bromide gr. x, veron gr. v, with or without codeine gr. $\frac{1}{4}$, repeated if needful, or appropriate doses of trional or sulfonal may accomplish the desired end.

In the insomnia due to pain, those remedies which quiet pain, whether chemical or hydrotherapeutic, will accomplish most.

Where malnutrition is the cause, measures dietetic and hygienic will of course avail most if faithfully pursued. In the case of cardiac or pulmonary troubles gentle massage and tepid sponge baths are to be preferred to drugs. In the infectious diseases, the insomnia is often due to fever, which of course must be reduced. Ice-caps, cool spongings or full baths, when possible, are suggestive measures.

In the headaches (and resulting insomnia) of syphilis, vigorous mercurialization will soonest bring efficient relief. In arterio-sclerosis, vasodilators are indicated. Energetic measures, hygienic, hydrotherapeutic, suggestive, are to be resorted to in the cases of hysterical origin.

Besides veronal (with or without codeine), trional, sulphonal, chloral, paraldehyde, chloral-amide, opium, or morphine, hysocine, scopolamine are recommended as available hypnotics. Chloral combined with morphine is especially efficient in delirium tremens. Paraldehyde and opium are to be avoided because of the frequent necessity of repetition.

Careful search for the cause of the condition precedes any rational or scientific treatment. Physiologic and psychic measures are not to be neglected, and drugs are to be reserved for extreme and difficult cases. (*Alfred Gordon in Therapeutic Gazette*, Feb. 15th, 1909.)

LARYNGOLOGY.

Conducted by

J. E. GLEASON, M. D.

Radical Frontal Sinus Operations.—HAJEK reports two operative frontal sinus cases which resulted fatally. The first case, a man 35 years old, had been operated previously, a suppurating fistula remaining over the left brow. The right frontal sinus was apparently normal, both intranasal and X-ray examinations being negative. The radical Killian operation was done on the left side. The anterior wall of the sinus had been removed previously, but there was found a deep orbital recess which still suppurated. The fifth day after operation the patient complained of severe headache on the right side. A swelling appeared over the right eye-lid and chemosis of the bulbar conjunctiva. Temperature 37.5 C. The swelling increased during the next five days, the presence of phlegmon of the orbit, arising from the infection from sutures of the wound, becoming evident. An incision extending across both eyebrows was made, liberating pus. The exposed wall of the right frontal sinus showed no suspicious spots. Although the temperature remained about normal, the general condition grew worse and the patient complained of severe headache in the right frontal and posterior region. The patient reacted slowly to questions, left-sided paraplegia and facial paresis developed. The sixteenth day after the first operation, the right frontal sinus was opened and found to contain pus. The posterior wall, although normal in appearance, was removed, exposing a stretched, non-pulsating, projecting dura. The bone was further removed and externally to the sinus an extra-dural abscess was exposed, whose origin was evidently from the orbital phlegmon. The dura was also opened and an intradural abscess drained. The patient, however, died the next day. The interesting points in this case are the complications of deep orbital phlegmon leading to brain complications and the overlooking of the right frontal empyema.

The second case was a man fifty years old with severe symptoms of an antrum and frontal infection; local intranasal treatment failed to drain the frontal sinus. Simple trephining was performed and the cavity washed for six weeks. Suppuration continuing, and examination through

a speculum showing granulations, the radical operation was done. The cavity was very large, with thin bony walls. Drainage was inserted at both extremities of the eyebrow. Symptoms of meningitis were present on the second day, the stitches were removed, but nothing found abnormal. Exitus on the third day from meningitis.

These two cases represent the types of fatal cases after frontal sinus operations. According to Gerber such cases have within the last few years reached the number of 36, many others of course unreported. Doubtless we will succeed in time in preventing these complications. Unfortunately many reports of fatal cases fail to state to what especial cause the lethal complications were to be laid. As far as these two cases are concerned, the first must be looked upon as an unfortunate wound infection. Much more obscure is the second case, the operation of which represented a typical surgical procedure and was technically extraordinarily smooth and yet resulted in a fatal termination very quickly. As a supposition only, judging from this case, it might be indicated to refrain from a too thorough curettage of the roof of the ethmoid, even with the alternative of leaving behind a little thickened mucous membrane. The too frequent occurrence of death after operation shows that the radical operation of the frontal sinus is not to be considered an entirely harmless interference, and that until the danger can be excluded completely, we should use the radical operation only on the strongest provocation. The serious cases with bone disease, fistula openings, with impending orbital or cerebral complications should be treated in this way. The great majority of uncomplicated chronic frontal empyemas will after intranasal treatment be so far benefitted that distressing symptoms cease. In these cases the radical operation should not be considered unless the headache and suppuration continue unabated. Intranasally improved cases, even if not entirely healed, are not to be operated radically for a long time. The danger of cerebral complications in these cases is a forbidding one.—*Proceedings Vienna Laryngological Society*, January 13th, 1909.